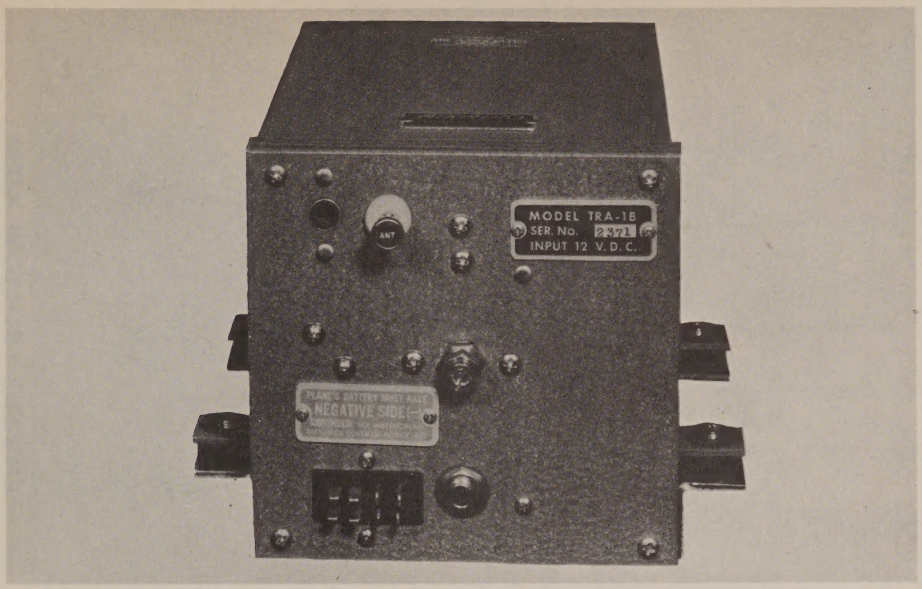
AIRADIO
MODELS TRA-1A, TRA-1B, TRA-1C



AIRADIO MODEL TRA-1

TRADE NAME	Airadio, Models TRA-1A (6 Volts), TRA-1B (12 Volts), TRA-1C (24 Volts)
MANUFACTURER	Airadio, Inc., Stamford, Conn.
TYPE SET	Battery Operated Aircraft Single Channel Crystal Controlled Transmitter
TUBES (THREE)	Types, (6 Volt Model) 7C5 Crystal-Oscillator, 7C5 Modulator, 7C5 Power Amplifier (12 & 24 Volt Models) 14C5 Crystal-Oscillator, 14C5 Modulator, 14C5 Power Amplifier.
POWER SUPPLY RATING	6, 12 or 24 Volt Storage Battery Transmit Position-5.4 Amp. @ 12.6 Volts DC, Receive Position-3 Amp. @ 12.6 Volts DC
OPERATING FREQUENCY	3105KC

TRANSMITTER TUNING PROCEDURE

1. Install transmitter and receiver in plane. Turn function selector switch on the receiver to "Tower" or "Voice" position. Set band switch in receiver to position "A". Turn transmitter "On".
2. Insert 0-100 milliammeter in power amplifier cathode circuit jack (43).
3. Connect a 0-1 Amp. RF thermocouple meter to antenna post (41).
4. Press microphone button to energize transmitter.
5. Loosen lock nut of "A1" and adjust for minimum cathode current with antenna disconnected.
6. Connect antenna and adjust loading coil until peak RF current is obtained.
7. Carefully readjust A1 for minimum cathode current and tighten lock nut.
8. Remove milliammeter and thermocouple and connect antenna directly to antenna post (41).

NOTE:
(Antenna loading coil is not furnished with this unit. The coil is used to properly load the transmitter to the different type antenna installations on various models of aircraft.)

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRADIO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	Crystal Osc.	7C5	7C5	6AA	Model TRA-1A
B&C	Crystal Osc.	14C5	14C5	6AA	Models TRA-1B, TRA-1C
2A	Modulator	7C5	7C5	6AA	Model TRA-1A
B&C	Modulator	14C5	14C5	6AA	Models TRA-1B, TRA-1C
3A	Power Amplifer	7C5	7C5	6AA	Model TRA-1A
B&C	Power Amplifier	14C5	14C5	6AA	Models TRA-1B, TRA-1C

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRADIO PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	20	450	CD-1173-4	EL-420	AF4444J	UP9DJ56	FP444	DY-4x20-450	● Filter
B	20	450							▲ "
C	20	450							"
D	20	450							■ Cath. Bypass
5	2	50	CD-1172						Hash Filter
6	2	50	CD-1172						" "
7	.02	1500	CD-1170-5	TR-12	2089-02	TVC16S2	OT376	XTIMS-20-.02	Buffer
8	.02	600	CD-1171-10	TC-12	684-02	DT6S2	TP412	S-6-02	Hash Filter
9	1000	600	CD-1071-25	1FM-21	1468-001	1W5D1	MC455	MO.3-21	Tank Coupling *
10	1000	600	CD-1071-25	1FM-21	1468-001	1W5D1	MC455	MO.3-21	RF Bypass Mod. Trans. *
11	1000	600	CD-1071-25	1FM-21	1468-001	1W5D1	MC455	MO.3-21	Pwr. Amp. Screen Bypass*
12	1000	600	CD-1071-25	1FM-21	1468-001	1W5D1	MC455	MO.3-21	Meter Bypass *
13	100	600	CD-1071-22	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Coupling
14	1000	600	CD-1071-25	1FM-21	1468-001	1W5D1	MC455	MO.3-21	Osc. Screen Bypass *
15	1000	600	CD-1071-25	1FM-21	1468-001	1W5D1	MC455	MO.3-21	RF Bypass Pwr. Supp. *
16	50	600	CD-1071-21	1FM-45	1468-00005	5W5Q5	MC225	MO.5-45	Osc. Grid

*May be 2000 MMF. in some models.

RESISTORS

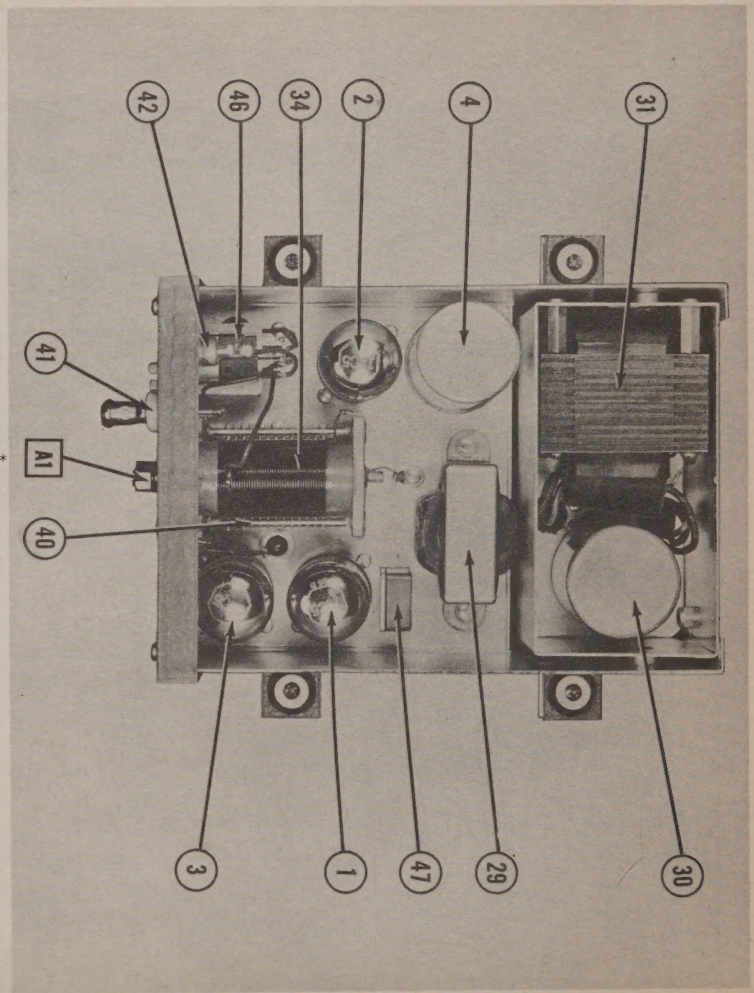
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRADIO PART No.	IRC PART No.	IDENTIFICATION CODES
17	4700Ω	½	RE-1127-475	BTS-4700	Yl.-Vi.-Red Hash Suppression
18	330Ω	½	RE-1137-334	BW-½-330	Or.-Or.-Br. " "
19	330Ω	½	RE-1137-334	BW-½-330	Or.-Or.-Br. " "
20	150KΩ	½	RE-1130-157	BTS-150K	Br.-Grn.-Yl. Crystal Oscillator Grid
21	100KΩ	½	RE-1130-107	BTS-100K	Br.-Blk.-Yl. Crystal Oscillator Screen Dropping
22	33KΩ	½	RE-1127-336	BTS-33K	Or.-Or.-Or. Power Amplifier Grid
23	10KΩ	1	RE-1129-106	BTA-10K	Br.-Blk.-Or. Power Amplifier Screen Dropping
24	36KΩ	1	RE-1117-336	BTA-39K	Or.-Blue-Or. Voltage Dropping
25	470Ω	1	RE-1129-474	BTA-470	Yl.-Vi.-Br. Modulator Cathode
26	1 Meg.	½	RE-1127-108	BTS-1 Meg.	Br.-Blk.-Grn. Modulator Grid
27	5000Ω	10	RE-1131-1	AB-5000	Filter
28	60Ω	10	RE-1152-2	ABA-75	Filament Dropping-See Note 1

Note 1 - Used in 24 Volt operation only. On IRC Replacement set slider at 60Ω from one end.

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000~)	REPLACEMENT DATA: AIRADIO PART NO.	STANCOR PART NO.	THORDARSON PART NO.	INSTALLATION NOTES
29	.094A	240Ω	3.5 Henries	CK-1034	C-1001	T20C53 ‡	‡ Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA: AIRADIO PART No.	MALLORY PART No.	RADIART PART No.	INSTALLATION NOTES
30A	Synchronous	6	100	VB-1012-1			
B	"	12		VB-1012-2			
C	"	24		VB-1012-3			

TRANSFORMER (VIBRATOR)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA: AIRADIO PART No.	STANCOR PART No.	THORDARSON PART No.	INSTALLATION NOTES
31A	6V DC @40Amps	App. 750V @ .094A.			TR-1038			TRA-1A
B	12.5V DC	740V CT			TR-1039			TRA-1B
C	24V	App. 750V.			TR-1046			TRA-1C

TRANSFORMER (MICROPHONE)

ITEM No.	RATING: IMPEDANCE PRI.	IMPEDANCE SEC.	TURNS RATIO PRI. to SEC.	REPLACEMENT DATA: AIRADIO PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
32	23Ω	45Ω	1 to 57	TR-1041-1				

TRANSFORMER (MODULATION)

ITEM No.	RATING: IMPEDANCE PRI.	IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: AIRADIO PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
33	5000Ω	5000Ω	120Ω	90Ω	TR-1040				

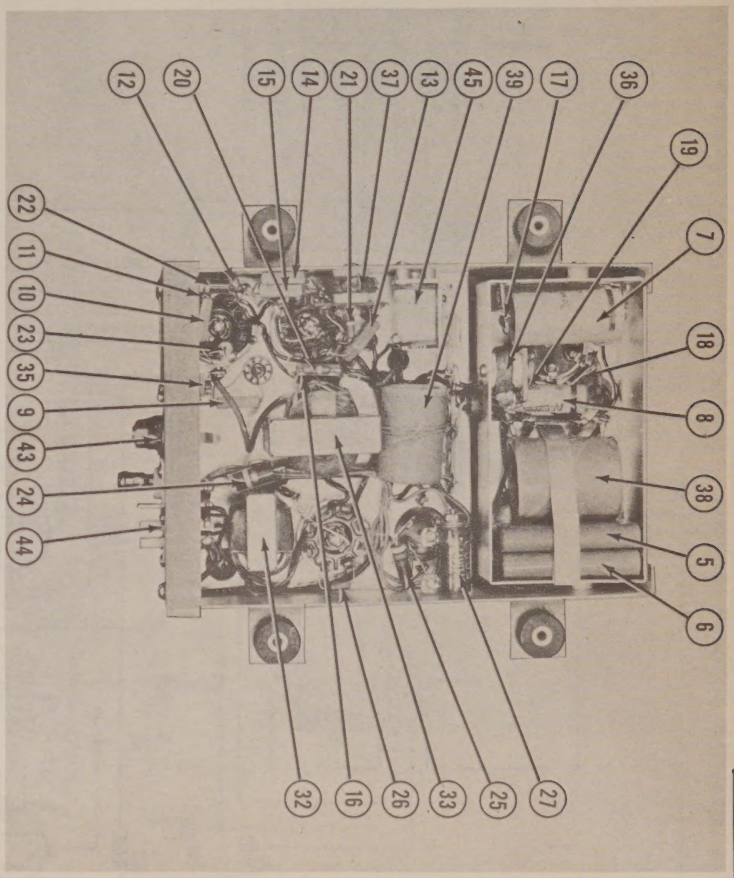
R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: AIRADIO PART No.	MEISSNER PART No.
34	Plate Tank Coil		.1Ω	AS-1738	
35	RF Choke		4.2Ω	AS-3018-1	
36	" "		4.2Ω	AS-3018-2	
37	" "		4.2Ω	AS-3018-3	
38	" "		0Ω	CK-1033-1	
39	" "		.1Ω	CK-1033-2	

MISCELLANEOUS

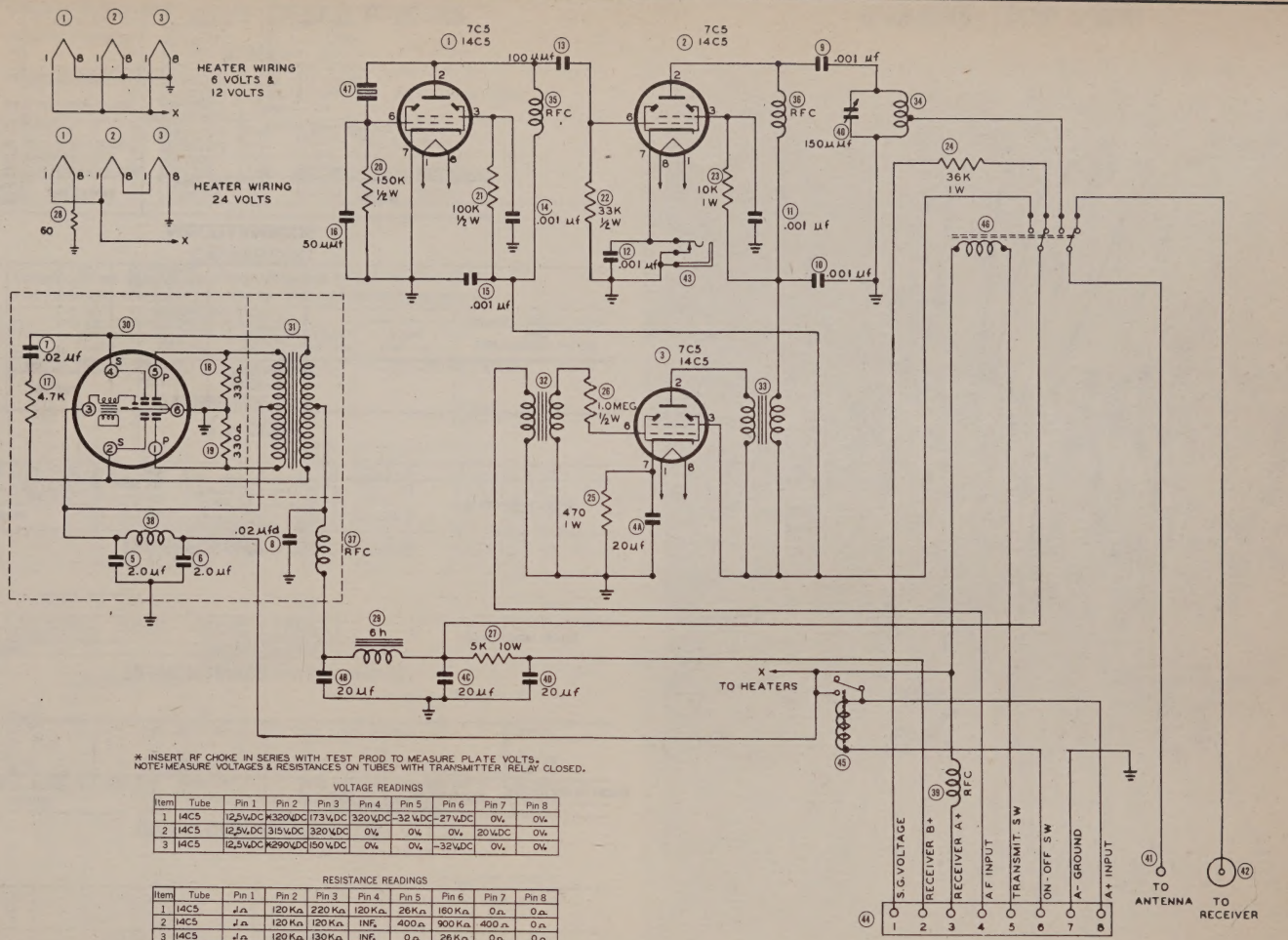
ITEM No.	PART NAME	AIRADIO PART No.	NOTES
40	Tuning Capacitor	CD-1169	RF Tank Tuning (A1)(10-150MMF)
41	Antenna Post	BP-1008	
42	Ant. Cable Socket	CC-1055-2	
43	Jack	JK-1023-1 or JK-1027	Power Amp. Cathode
44	Connector Plug	AS-1799	8 Circuit
45	On-Off Relay	RY-1019-4	6 Volt Model
		RY-1019-2	12 Volt Model
		RY-1019-6	24 Volt Model
46	Trans-Rcve. Relay	RY-1019-3	6 Volt Model
		RY-1019-1	12 Volt Model
		RY-1019-5	24 Volt Model
47	Crystal		

CHASSIS—BOTTOM VIEW



AIRADIO MODELS TRA-1A, TRA-1B, TRA-1C

AIRADIO MODELS TRA-1A, TRA-1B, TRA-1C



* INSERT RF CHOKE IN SERIES WITH TEST PROD TO MEASURE PLATE VOLTS.
NOTE: MEASURE VOLTAGES & RESISTANCES ON TUBES WITH TRANSMITTER RELAY CLOSED.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14C5	12.5 V DC	*320 V DC	173 V DC	320 V DC	-32 V DC	-27 V DC	0 V.	0 V.
2	14C5	12.5 V DC	315 V DC	320 V DC	0 V.	0 V.	0 V.	20 V DC	0 V.
3	14C5	12.5 V DC	*290 V DC	150 V DC	0 V.	0 V.	-32 V DC	0 V.	0 V.

RESISTANCE READINGS

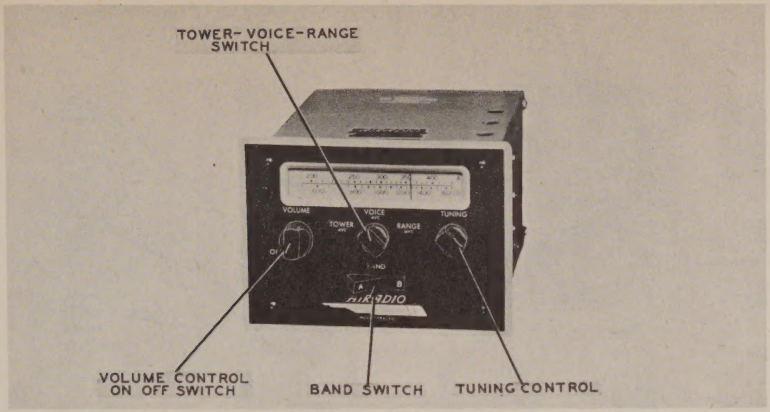
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14C5	∞	120 KΩ	220 KΩ	120 KΩ	26 KΩ	160 KΩ	0 Ω	0 Ω
2	14C5	∞	120 KΩ	120 KΩ	INF.	400 Ω	900 KΩ	400 Ω	0 Ω
3	14C5	∞	120 KΩ	130 KΩ	INF.	0 Ω	26 KΩ	0 Ω	0 Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 473-1

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

AIRADIO
MODEL SU-52 A, SU-52 B, SU-52 C



AIRADIO MODEL SU-52

TRADE NAME	Airadio, Models SU-52A (6 Volt), SU-52B (12 Volt), SU-52C (24 Volt)
MANUFACTURER	Airadio, Inc., Stamford, Conn.
TYPE SET	Battery Operated Aircraft 2 Band Superheterodyne Receiver
TUBES (FIVE)	Types (6 Volt Model) 7A7 RF Amp., 7Q7 Converter, 7A7 IF Amp., 7B6 Det.-AVC-AF, 7A4 Power Output (12 & 24 Volt Models) 14A7 RF Amp., 7Q7 Converter, 7A7 IF Amp. 14B6 Det.-AVC-AF, 14A4 Power Output
POWER SUPPLY	6, 12 or 24 Volt Storage Battery
RATING	"A" Supply 750 MA @ 12.6 Volts DC - "B" Drain 24 MA @ 345 Volts DC
TUNING RANGE—BROADCAST	195-420 KC. 550-1600 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer to last reference mark at low freq. end of dial. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Receiver selector switch should be on range position throughout alignment. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
75 MMF.	High side to pin 6 of 14A7 IF Amp. (#3). Low side to chassis.	90KC	B	Variable fully closed.	PhoneJack	A1,A2	Adjust for maximum output
75 MMF.	High side to pin #6 of 14Q7. Low side to chassis.	"	"	"	"	A3,A4	Adjust for maximum output. Repeat last two steps.
75 MMF.	"	200KC	A	200KC	"	A5	Adjust for maximum output.
75 MMF.	"	400KC	"	400KC	"	A6	Adjust for maximum output. Repeat last two steps.
75 MMF.	"	600KC	B	600KC	"	A7	Adjust for maximum output.
75 MMF.	"	1400KC	"	1400KC	"	A8	Adjust for maximum output. Repeat last two steps.
75 MMF.	High side to pin 6 of 14A7 RF Amp. (#1). Low side to chassis.	200KC	A	200KC	"	A9	Adjust for maximum output.
75 MMF.	"	400KC	"	400KC	"	A10	Adjust for maximum output. Repeat last two steps.
75 MMF.	"	600KC	B	600KC	"	A11	Adjust for maximum output.
75 MMF.	"	1400KC	"	1400KC	"	A12	Adjust for maximum output. Repeat last two steps.
75 MMF.	High side to ant. jack. Low side to chassis.	200KC	A	200KC	"	A13	Adjust for maximum output.
75 MMF.	High side to ant. jack. Low side to chassis.	400KC	A	400KC	"	A14	Adjust for maximum output. Repeat last two steps.
75 MMF.	"	600KC	B	600KC	"	A15	Adjust for maximum output.
75 MMF.	"	1400KC	"	1400KC	"	A16	Adjust for maximum output. Repeat all the above steps until optimum output is obtained. Check calibration.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRADIO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	RF Amp.	7A7	7A7	8V	Model SU-52A
B&C	RF Amp.	14A7	14A7	8V	Models SU-52B, SU-52C
2A	Converter	7Q7	7Q7	8AL	Model SU-52A
B&C	Converter	14Q7	14Q7	8AL	Models SU-52B, SU-52C
3A	IF Amp.	7A7	7A7	8V	Model SU-52A
B&C	IF Amp.	14A7	14A7	8V	Models SU-52B, SU-52C
4A	Det.-AVC-AF	7B6	7B6	8W	Model SU-52A
B&C	Det.-AVC-AF	14B6	14B6	8W	Models SU-52B, SU-52C
5A	Power Output	7A4	7A4	5AC	Model SU-52A
B&C	Power Output	14A4	14A4	5AC	Models SU-52B, SU-52C

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRADIO PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6	10	25	CD-1180-1	TA-10	PRS25-10	BR102A	TC22	M-10-25	Output Cath. Bypass
7	.01	500	CD-1188-14		484-01	DT4S1	TP421	S-4-01	Audio Coupling
8	.01	150	CD-1190-50			ZN1S1	MT125	TTF-1-01	" "
9	.1	150	CD-1190-8			ZN1P1	MT145	TTF-1-1	IF Cath. Bypass
10	.1	400	CD-1189-52	TC-1	484-.1	DT4P1	TP428	S-4-1	Screen Bypass
11	.1	400	CD-1189-52	TC-1	484-.1	DT4P1	TP428	S-4-1	RF Bypass Pwr. Supp.
12	.1	150	CD-1190-8			ZN1P1	MT145	TTF-1-1	RF Cath. Bypass
13	.1	150	CD-1190-8			ZN1P1	MT145	TTF-1-1	AVC Filter
14	500	500	CD-1071-26	1FM-35	1468-0005	SW5T5	MC245	MO.5-35	Audio Plate Bypass
15	500	500	CD-1071-26	1FM-35	1468-0005	SW5T5	MC245	MO.5-35	Mike Coupling
16	200	500	CD-1071-24	1FM-32	1468-0002	SW5T2	MC237	MO.5-32	Diode Filter
17	200	500	CD-1071-24	1FM-32	1468-0002	SW5T2	MC237	MO.5-32	" "
18	19	500		MS-42		SR5Q2		MO.5-42	Fixed Trimmer *

*Not used in all models.

CONTROLS

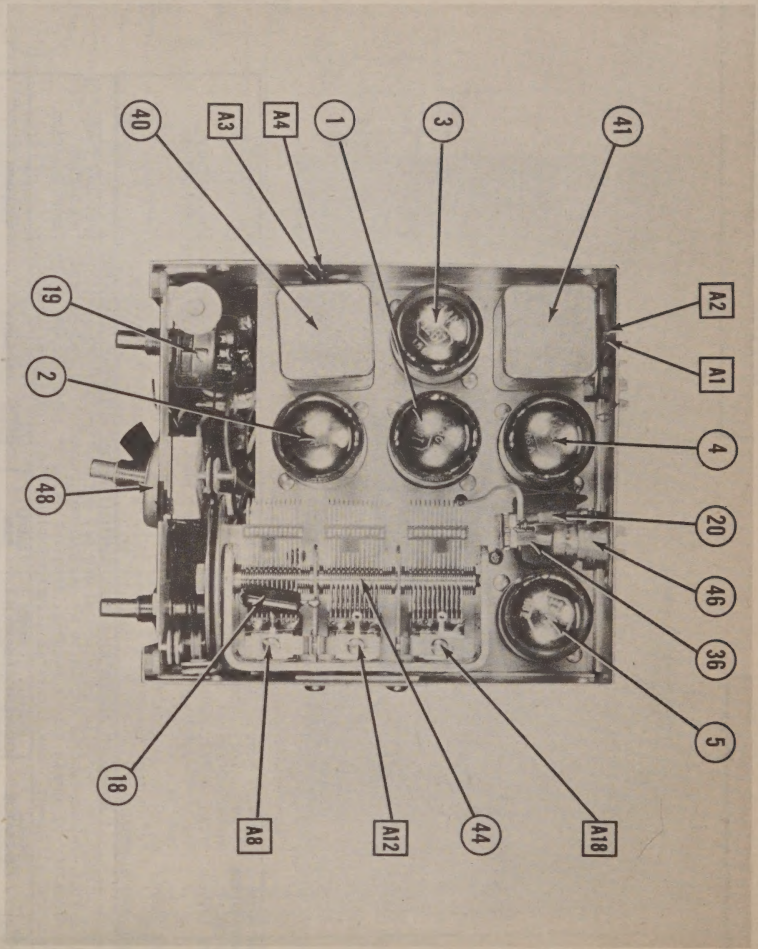
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRADIO PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
19A	25KΩ		RE-1140	MR28	D16-120		Volume Control
B	Shaft		Not Req.	Not Req.	A		Attach to 19A per instructions
C	Switch		" "	M26	41		" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRADIO PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
20	22KΩ	½	RE-1130-226	BTS-22K	Red-Red-Or. Antenna Loading
21	680Ω	½	RE-1130-684	BTS-680	Blue-Gray-Br. RF Cathode
22	22KΩ	½	RE-1130-226	BTS-22K	Red-Red-Or. Oscillator Grid
23	100KΩ	½	RE-1130-107	BTS-100K	Br.-Blk.-Yl. Voltage Dropping
24	2200Ω	½	RE-1130-225	BTS-2200	Red-Red-Red Voltage Dropping
25	680KΩ	½	RE-1130-687	BTS-680K	Blue-Gray-Yl. AVC Network
26	47KΩ	½	RE-1130-476	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
27	1 Meg.	½	RE-1130-108	BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
28	2.2 Meg.	½	RE-1130-228	BTS-2.2 Meg.	Red-Red-Grn. 1st AF Grid
29	220KΩ	½	RE-1130-227	BTS-220K	Red-Red-Yl. 1st AF Plate Load
30	470KΩ	½	RE-1130-477	BTS-470K	Yl.-Vi.-Yl. Tone Compensation
31	470KΩ	½	RE-1130-477	BTS-470K	Yl.-Vi.-Yl. Output Grid
32	680Ω	½	RE-1130-684	BTS-680Ω	Blue-Gray-Br. Output Cathode
33	470Ω	½	RE-1130-474	BTS-470Ω	Yl.-Vi.-Br. Output Cathode
34	150Ω	½	RE-1139-154	BW-½-150	Br.-Grn.-Br. IF Cathode
35	180Ω	2	RE-1114-184	BW-2-180	Br.-Gray-Br. Filament Dropping-See Note 1

Note 1 - Used in 24 volt operation only.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

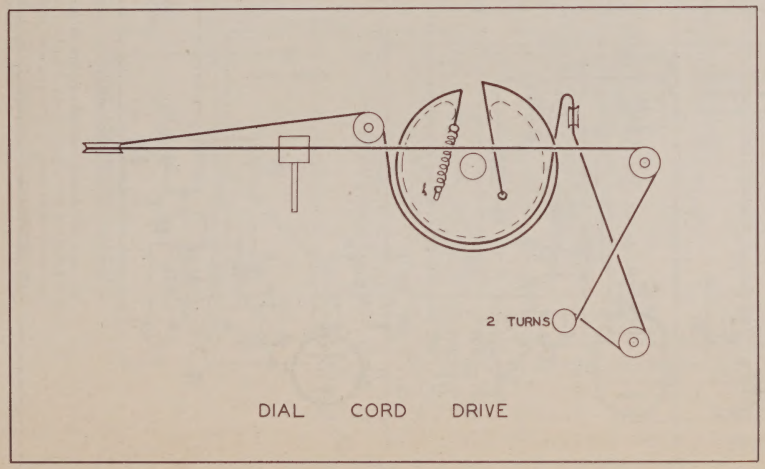
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRADIO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
36	4800Ω	600Ω	460Ω	10Ω	TR-1041-2				

R F COILS

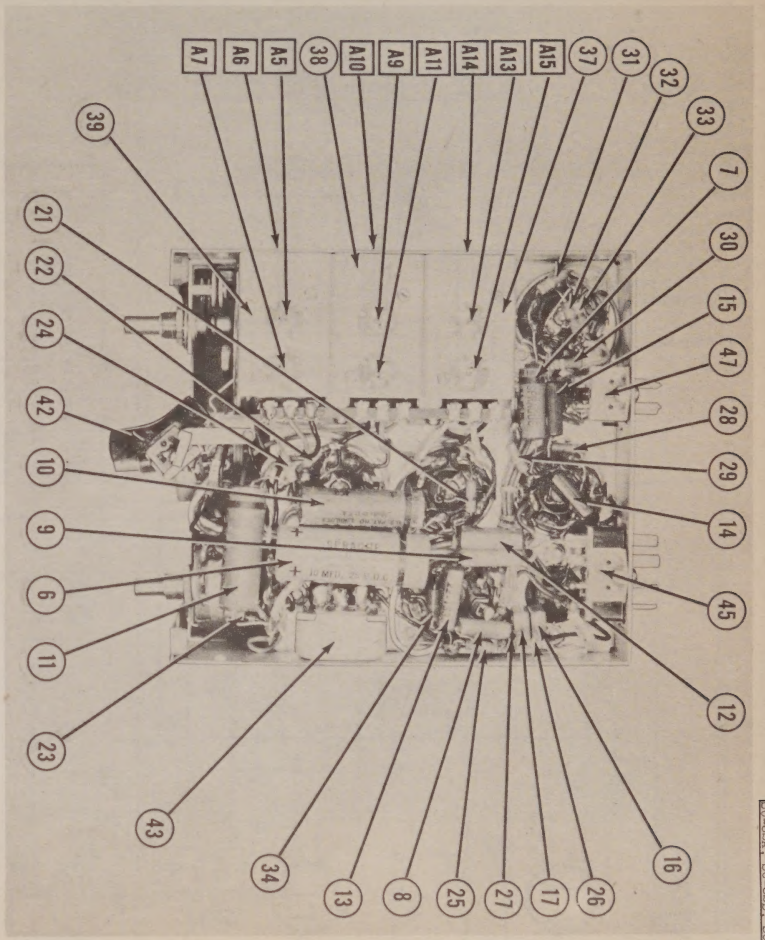
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRADIO PART No.	MEISSNER PART No.	
37A	LF Ant. Coil		55Ω	AS-1868		37A & 37B wound on same form.
B	BC Ant. Coil	46Ω				
38A	LF RF Coil	250Ω	43Ω	AS-1869		38A & 38B wound on same form.
B	BC RF Coil	570Ω	12Ω			
39A	LF Osc.Coil		10Ω	AS-1871		39A & 39B wound on same form.
B	BC Osc.Coil					
40	Input IF	230Ω	230Ω	AS-1805		
41	Output IF	220Ω	230Ω	AS-1805		

MISCELLANEOUS

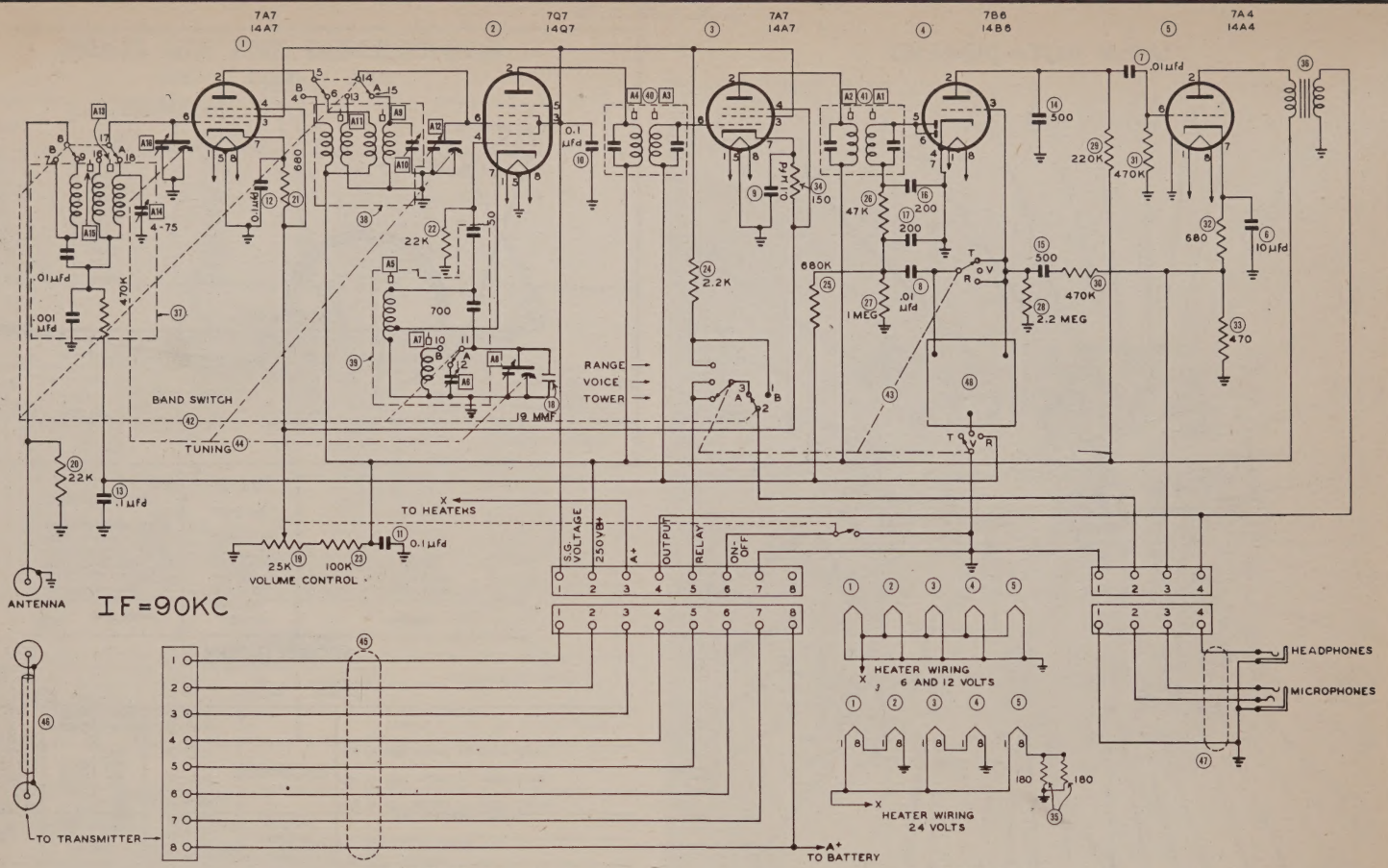
ITEM No.	PART NAME	AIRADIO PART No.	NOTES
42	Bandswitch	AS-1810	6 Pole - 2 Position
43	Range Filter Sw	SW-1052-2	3 Pole - 3 Position
44	3 Gang Var. Cap.	AS-3000-1	Trimmers Included
45	Connector Plug	AS-1799	8 Circuit
46	Ant.Cable Socket	CC-1055-2	
47	Headphone Mike Plug	AS-1845	
48	Range Filter Assy.	AS-1806	



CHASSIS—BOTTOM VIEW



AIRADIO MODELS SU-52A, SU-52B, SU-52C



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	12.5 V.DC	330 V.DC	103 V.DC	0 V.	0 V.	-5 V.DC	7.8 V.DC	0 V.
2	14Q7	12.5 V.DC	330 V.DC	103 V.DC	-6.2 V.DC	0 V.	0 V.	0 V.	0 V.
3	14A7	12.5 V.DC	330 V.DC	103 V.DC	0 V.	0 V.	-6 V.DC	2.8 V.DC	0 V.
4	14B6	12.5 V.DC	137 V.DC	-7 V.DC	0 V.	-9 V.DC	-9 V.DC	0 V.	0 V.
5	14A4	12.5 V.DC	330 V.DC	4.6 V.DC	-3 V.DC	0 V.	0 V.	11.5 V.DC	0 V.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14A7	∞	120 KΩ	156 KΩ	1 Ω	0 Ω	1.9 MEG.	680 Ω	0 Ω
2	14Q7	∞	120 KΩ	156 KΩ	19.2 KΩ	0 Ω	1 Ω	3 Ω	0 Ω
3	14A7	∞	120 KΩ	156 KΩ	1 Ω	0 Ω	1.4 MEG.	150 Ω	0 Ω
4	14B6	∞	340 KΩ	2.3 MEG.	0 Ω	950 KΩ	950 KΩ	0 Ω	0 Ω
5	14A4	∞	120 KΩ	430 Ω	500 KΩ	500 KΩ	500 KΩ	1 KΩ	0 Ω

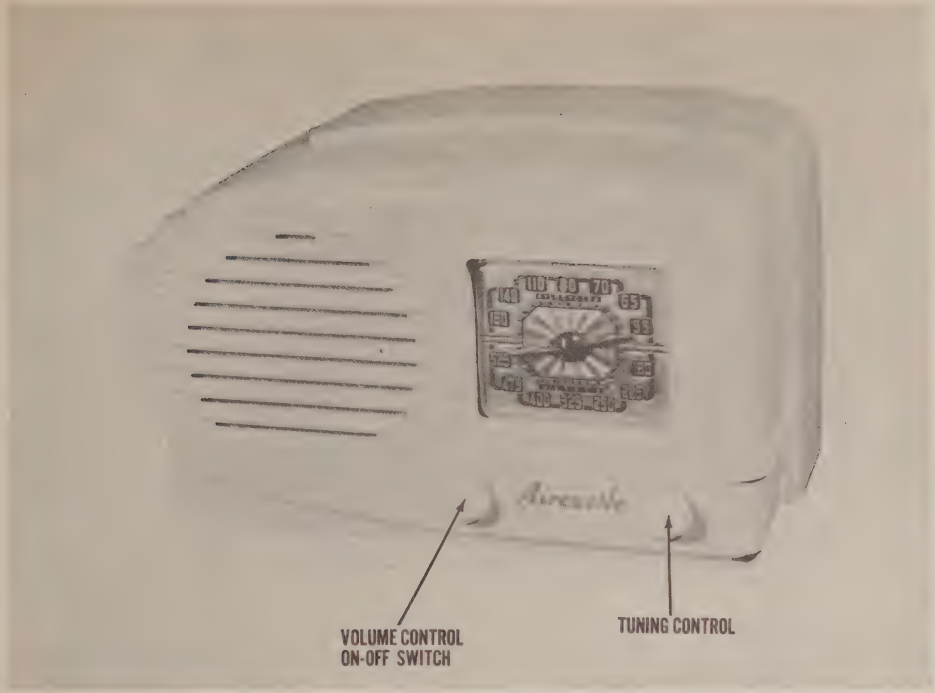
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-2

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

AIRCASTLE
MODEL 106B



AIRCASTLE
MODEL 106B

AIRCASTLE MODEL 106B

TRADE NAME	Aircastle, Model 106B
SUPPLIER	Spiegal Inc., 1061 W. 35th St., Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC-DC
TUNING RANGE—BROADCAST	540-1630KC RATING .260 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer at last reference mark at low freq. end of dial. Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and keep output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	High freq. end.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation trans. is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
250 MMF.	High side to ext. ant. Low side to ext. ground.	1630KC	"	"	A5	Adjust for maximum output.
250 MMF.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Osc.-Mod.	12SA7	12SA7	8R	
2	IF Amp.	12SK7	12SK7	8N	
3	AVC.-Det.-Audio	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150	18-266	TA330	PRSA150-40-	EZ3315	2N513	DSB-2x30-150	Filter - Red
B	30	150			40				" - Yellow
7	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Output Plate Bypass
9	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
10	.004	600		TC-24	684-004	DT5D4	TP407	S-6-004	" "
11	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
12	250	500		1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Audio Plate Bypass
13	100	600		1FM-31	1468-0001	5W5T1	MC235	M0.5-31	IF Bypass Vol. Cont.
14	50	600		1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
15A	500KΩ	1	24-153	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.		E	KSS-3	Attach to 15A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

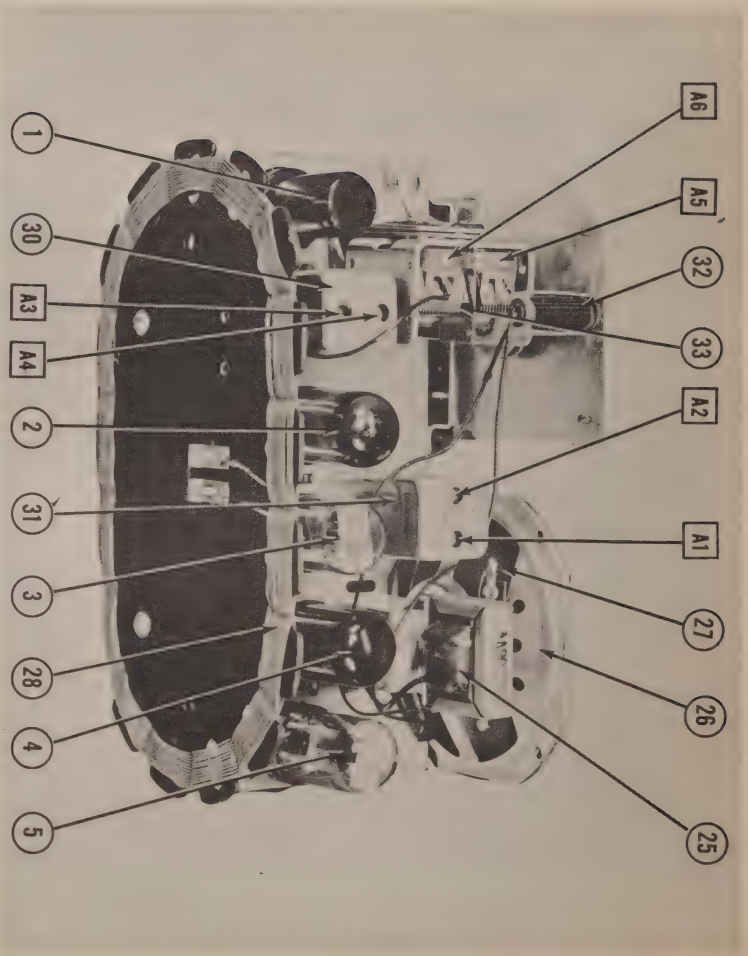
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	IDENTIFICATION CODES
16	22KΩ	½		BTS-22K	Red-Red-Or. Osc. Grid
17	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
18	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
19	220KΩ	½		BTS-220K	Red-Red-Yl. Plate Load
20	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
21	120Ω	½		BW-½-120Ω	Br.-Red-Br. Output Cathode
22	10KΩ	1		BTA-10K	Br.-Blk.-Or. Bleeder
23	1000Ω	½		BTS-1000Ω	Br.-Blk.-Red Filter
24	27Ω	½		BW-½-27Ω	Red-Vi.-Blk. Rectifier Ballast
34	15 Meg.	1/3		BTS-15 Meg.	Br.-Grn.-Blue AVC Network

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIRCASTLE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
25	2050Ω	3.1Ω	142Ω	.6Ω	80-224	A3876	T22S45*		*Bend mounting tabs down and mount by original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: AIRCASTLE PART No.	JENSEN PART No.		INSTALLATION NOTES
26	FIELD PM	VC IMP. 3.1Ω	79-339	ST-107† Mod. P5-V		†Case must be drilled and tapped. Cut flange to clear cabinet.
27	CONE DIA. 4½"	VC DIA. ⅝"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

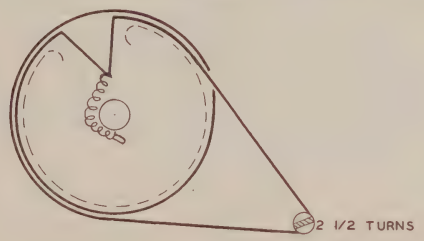
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: AIRCASTLE PART No.	MEISSNER PART No.	INSTALLATION NOTES
28	Ant. Coil	0	1.5Ω	82-30		
29	Osc. Coil	.5Ω	3.5Ω	10-394	14-1040	
30	Input IF	32Ω	32Ω	10-369	16-6655	
31	Output IF	30Ω	31Ω	10-370	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: AIRCASTLE PART No.		INSTALLATION NOTES
32	Bayonet	6-8	0.15A	Brown			Type 47

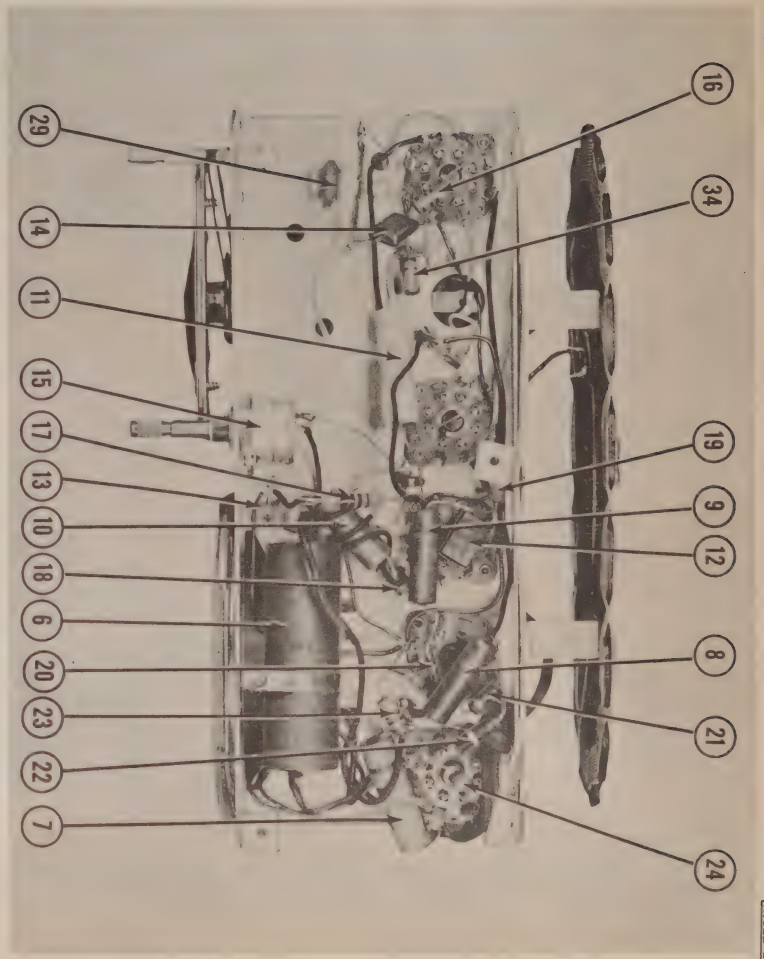
MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
33	Two Gang Var.Cap		Trimmers A5 and A6 included.



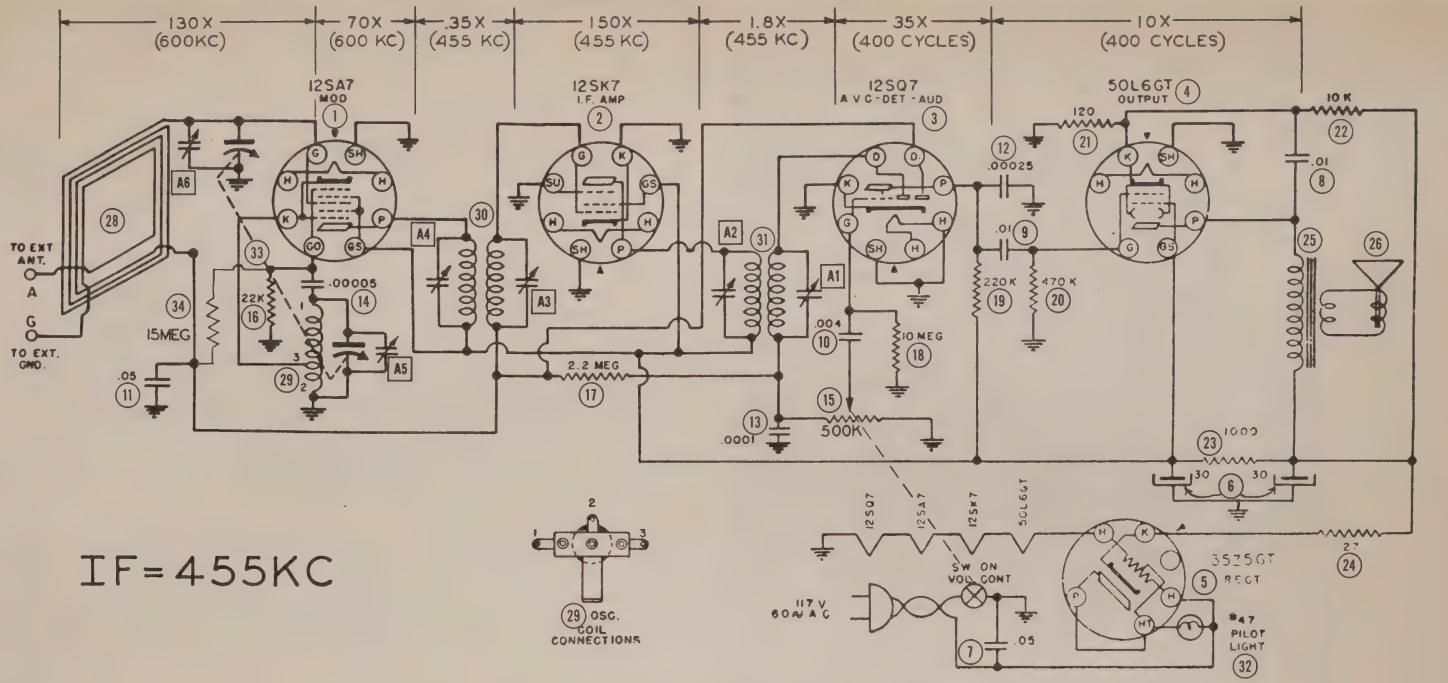
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



AIRCASTLE MODEL 108B

AIRCASTLE MODEL 108B



IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	13V.AC	88V.DC	88V.DC	-3.2V.DC	0V.	25V.AC	-45V.DC
2	12SK7	0V.	25V.AC	0V.	-45V.DC	0V.	88V.DC	36.5V.AC	88V.DC
3	12SQ7	0V.	-55V.DC	0V.	-3V.DC	-45V.DC	71V.DC	0V.	13V.AC
4	50L6GT	0V.	87V.AC	107V.DC	88V.DC	0V.	0V.	36.5V.AC	5.9V.DC
5	35Z5GT	0V.	117V.AC	113V.AC	113V.DC	113V.AC	0V.	87V.AC	115V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0Ω	12Ω	10KΩ	10KΩ	19KΩ	.5Ω	23Ω	2.3MEG.
2	12SK7	0Ω	23Ω	0Ω	2.3MEG.	0Ω	10KΩ	34Ω	10KΩ
3	12SQ7	0Ω	10MEG.	0Ω	600KΩ	2.3MEG.	230KΩ	0Ω	12Ω
4	50L6GT	0Ω	78Ω	10KΩ	10KΩ	510KΩ	INF.	34Ω	108Ω
5	35Z5GT	0Ω	106Ω	103Ω	10KΩ	103Ω	INF.	78Ω	10KΩ

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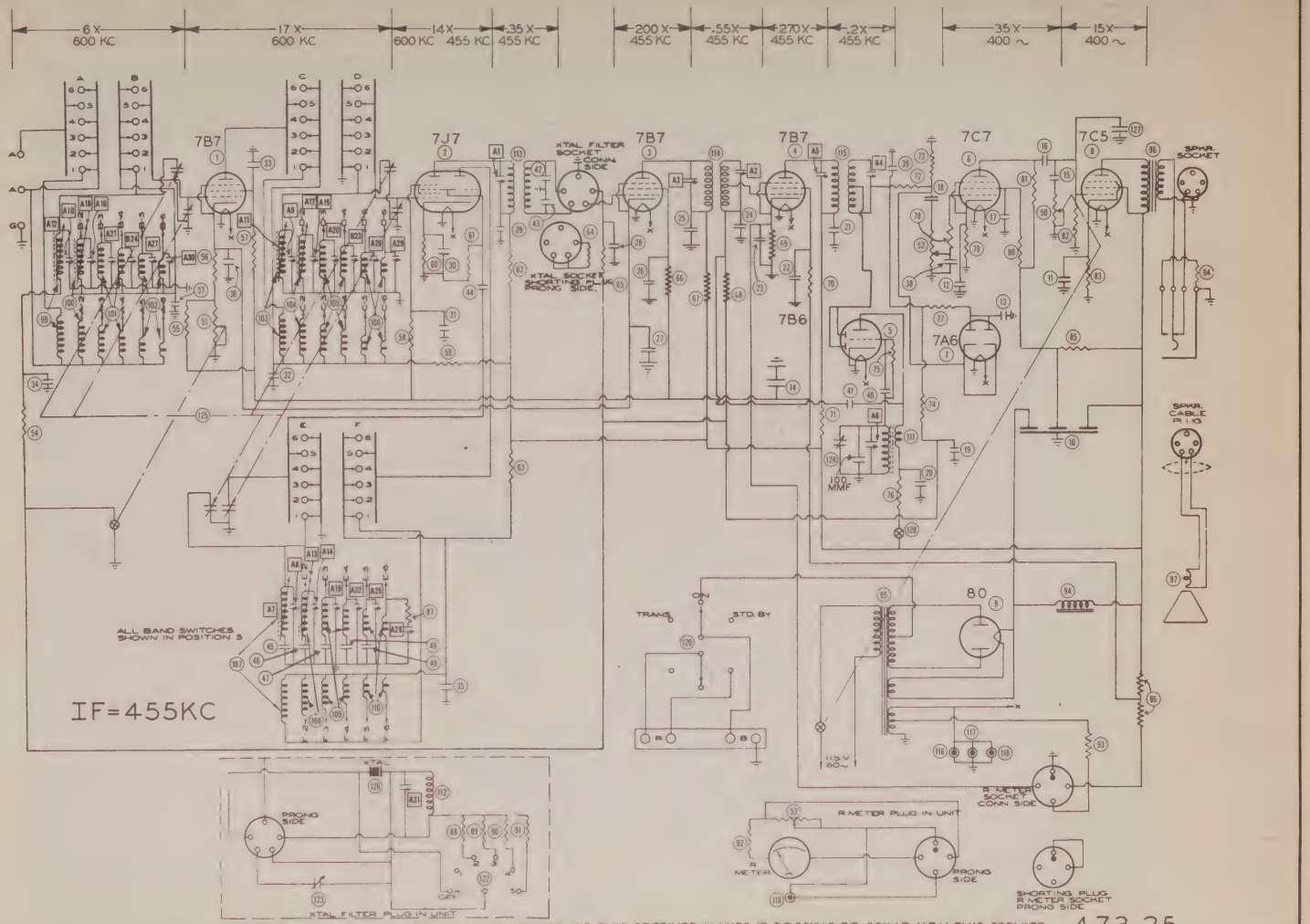
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-3

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

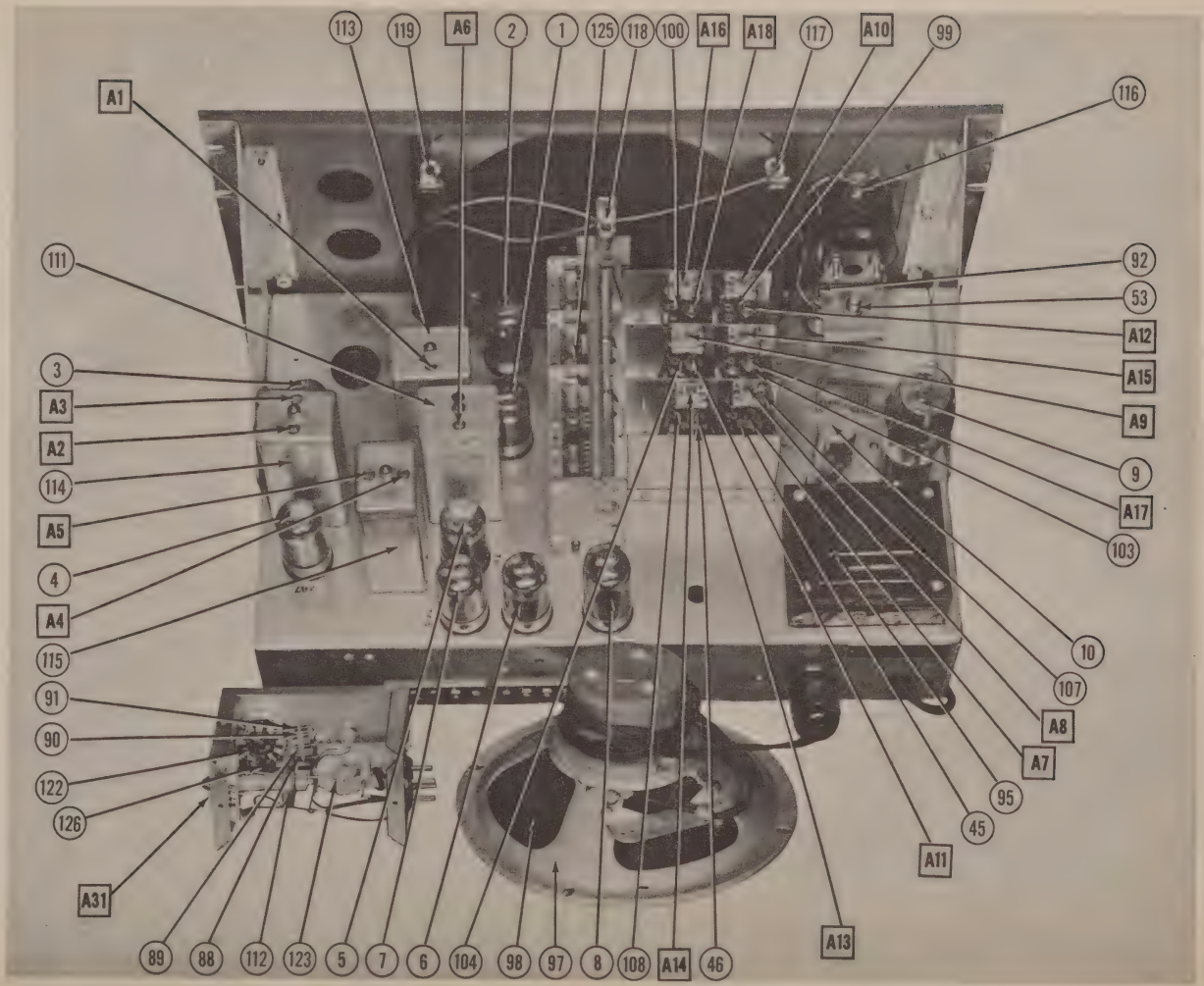
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



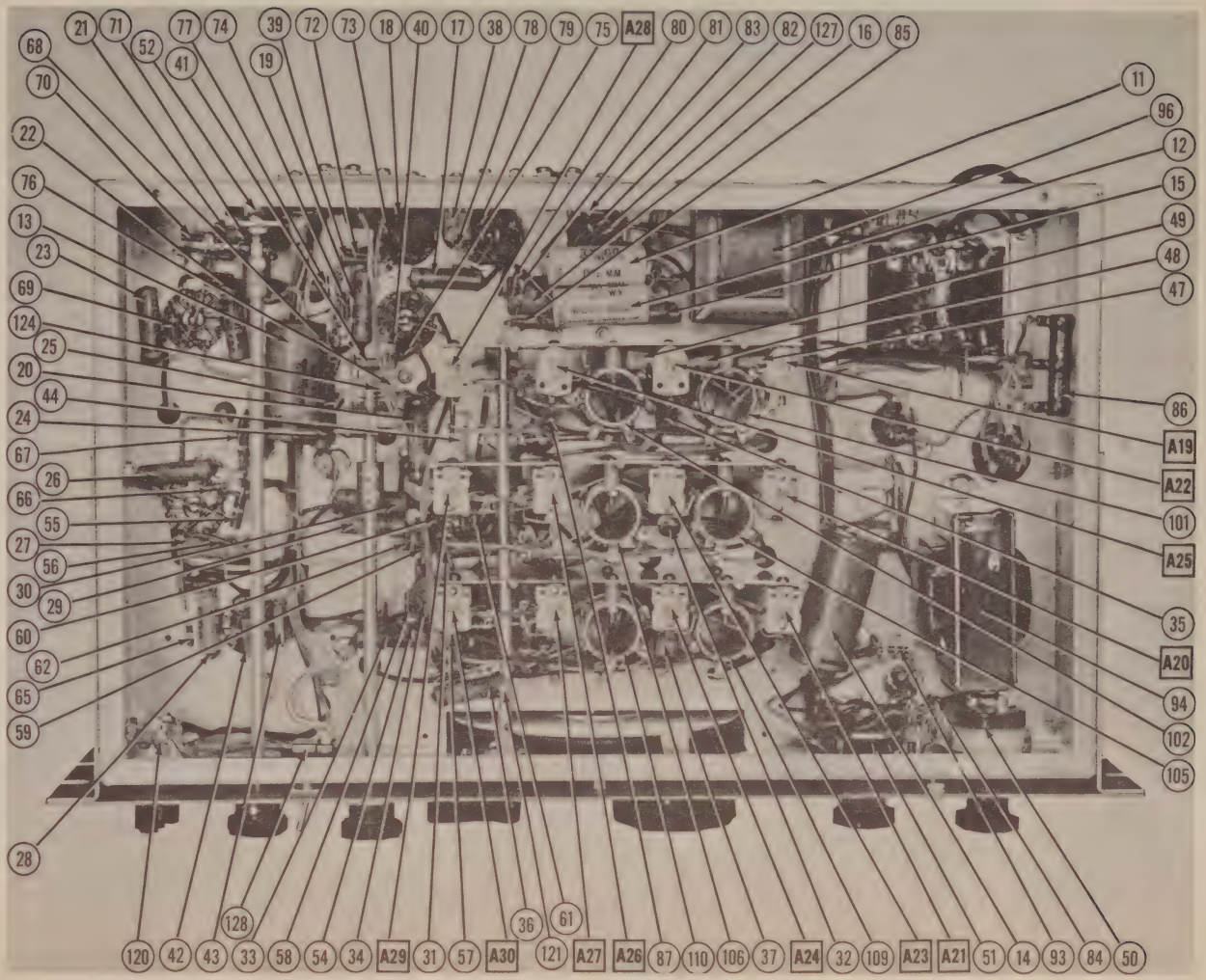
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 473-25

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



CONTROLS SET AS FOLLOWS:
LINE-TONE CONTROL MAXIMUM CLOCKWISE
RF GAIN ON AVC
BAND SELECTOR AT #1
BFO OFF EXCEPT FOR 7B6 READINGS
AUDIO GAIN AT MAXIMUM

VOLTAGE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	7B7	0V.	290 V.DC	115 V.DC	3 V.DC	0V.	-.1 V.DC	3 V.DC	6.5 V.AC
2	7J7	0V.	308 V.DC	195 V.DC	-3 V.DC	115 V.DC	0V.	3.1 V.DC	6.5 V.AC
3	7B7	0V.	290 V.DC	115 V.DC	3 V.DC	0V.	-.1 V.DC	3 V.DC	6.5 V.AC
4	7B7	0V.	295 V.DC	115 V.DC	2.5 V.DC	0V.	-.1 V.DC	2.5 V.DC	6.5 V.AC
5	7B6	0V.	140 V.DC	-4.5 V.DC	0V.	-.5 V.DC	-.5 V.DC	0V.	6.5 V.AC
6	7C7	0V.	180 V.DC	60 V.DC	1.5 V.DC	0V.	0V.	1.5 V.DC	6.5 V.AC
7	7A8	0V.	-.2 V.DC	-.55 V.DC	0V.	0V.	-.55 V.DC	-.2 V.DC	6.5 V.AC
8	7C5	0V.	300 V.DC	308 V.DC	0V.	0V.	0V.	15 V.DC	6.5 V.AC
9	80	338 V.DC	335 V.AC	335 V.AC	338 V.DC				

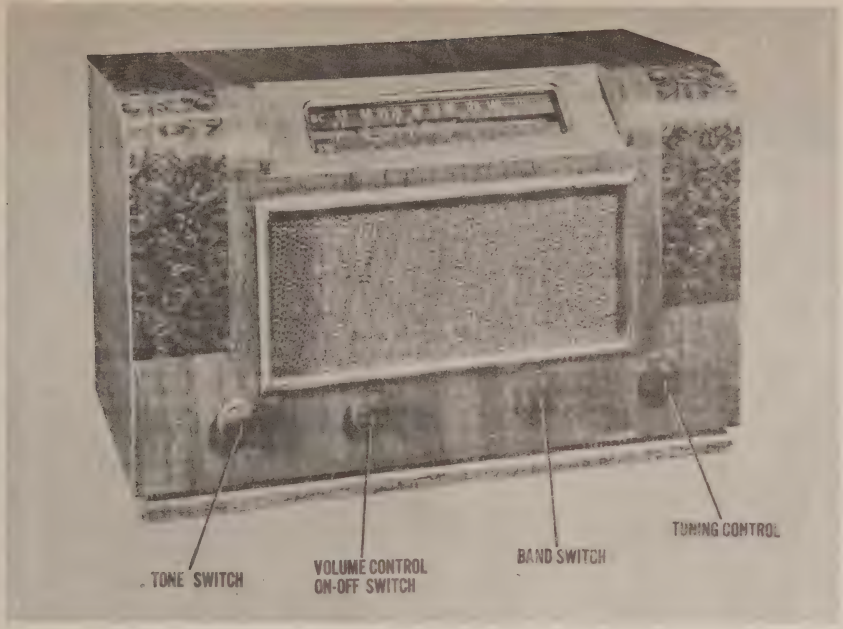
RESISTANCE READINGS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
1	7B7	0 Ω	1.5 KΩ	6.4 KΩ	140 Ω	0 Ω	1 MEG.	140 Ω	.2 Ω
2	7J7	0 Ω	1.5 KΩ	27 KΩ	51 KΩ	5.5 KΩ	2.8 Ω	250 Ω	.2 Ω
3	7B7	0 Ω	1.5 KΩ	6.4 KΩ	140 Ω	0 Ω	1 MEG.	140 Ω	.2 Ω
4	7B7	0 Ω	1.5 KΩ	6.4 KΩ	210 Ω	0 Ω	1 MEG.	210 Ω	.2 Ω
5	7B6	0 Ω	225 KΩ	90 KΩ	0 Ω	103 KΩ	103 KΩ	0 Ω	.2 Ω
6	7C7	0 Ω	103 KΩ	850 KΩ	900 Ω	0 Ω	280 KΩ	900 Ω	.2 Ω
7	7A8	0 Ω	53 KΩ	350 KΩ	INF.	0 Ω	350 KΩ	53 KΩ	.2 Ω
8	7C5	0 Ω	9.5 KΩ	9.1 KΩ	INF.	0 Ω	240 KΩ	225 Ω	.2 Ω
9	80	9.5 KΩ	103 Ω	95 Ω	9.5 KΩ				

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC VOLTAGE MEASUREMENTS ARE AT 20,000 OHMS PER VOLT; AC VOLTAGES MEASURED AT 1,000 OHMS PER VOLT.
2. SOCKET CONNECTIONS ARE SHOWN AS BOTTOM VIEWS.
3. MEASURED VALUES ARE FROM SOCKET PIN TO COMMON NEGATIVE.
4. LINE VOLTAGE MAINTAINED AT 117 VOLTS FOR VOLTAGE READINGS.
5. NOMINAL TOLERANCE ON COMPONENT VALUES MAKES POSSIBLE A VARIATION OF ± 10% IN VOLTAGE AND RESISTANCE READINGS.
6. VOLUME CONTROL AT MAXIMUM, NO SIGNAL APPLIED FOR VOLTAGE MEASUREMENTS.

AIRCASTLE
MODELS 5010, 5011, 5012



AIRCASTLE MODEL 5011

TRADE NAME	Aircastle Models 5010, 5011, 5012 (Ch. 110)
SUPPLIER	Spiegel Inc., 1061 W. 35th St., Chicago, Ill.
TYPE SET	AC-DC 2 Band Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12AT6 Det.-AVC-AF, 35L6GT Power Output, 35W4 Rectifier.
POWER SUPPLY	110-125 Volts AC-DC — RATING .240 Amps. @ 117V AC
TUNING RANGE—BROADCAST	520-1730KC — SHORT WAVE 5.4-18.4 MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	BC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	"	1730KC	"	"	"	A5	"
200 MMFD	High side to ext. ant. lead. Low side to B-.	1400KC	"	Tune for maximum output.	"	A6	Adjust for maximum output.
200 MMFD	"	600KC	"	"	"	A7	Rock variable and adjust for maximum output. Repeat last three steps.
400Ω	"	18.3MC	SW	Variable fully open.	"	A8	Adjust for maximum output. Tune receiver to approximately 17.4MC where image should be received. If image is not heard, repeat adjustment of A8 and check again for image.
400Ω	"	18MC	"	Tune for maximum output.	"	A9	Rock variable and adjust for maximum output. Check calibration at 6MC.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12AT6	12AT6	7BT	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	EC-4	EL-340	AF888D	UP6CJ44	FP357	DY-3x40-150	Filter - Red
B	40	150							" - "
C	40	150							" - Blue
8	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
9	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	Tone Compensation
10	.01	400	PC-7	TC-11	484-01	DT4S1	TP421	S-4-01	Output Plate Bypass
11	.005	600	PC-6	TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
12	.005	600	PC-6	TC-25	684-005	DT6D5	TP408	S-6-005	" "
13	.1	400	PC-8	TC-1	484-.1	DT4P1	TP428	S-4-1	IF Screen Bypass
14	.1	400	PC-8	TC-1	484-.1	DT4P1	TP428	S-4-1	RF Screen Bypass
15	.05	400	PC-5	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
16	.1	400	PC-8	TC-1	484-.1	DT4P1	TP428	S-4-1	Line Isolation
17	.01	400	PC-7	TC-11	484-01	DT4S1	TP421	S-4-01	Ant. Coupling
18	200	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	Audio Plate Bypass
19	100	500	MC-2	1FM-31	1468-0001	5W5T1	MC235	M0.5-31	IF Bypass Vol. Cont.
20	100	500	MC-2	1FM-31	1468-0001	5W5T1	MC235	M0.5-31	IF Bypass Diode
21	47	500		1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Osc. Grid Capacitor
22	4750	300	MC-1						Fixed Padder SW
23	200	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	RF Coupling
24	200	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	Fixed Padder BC

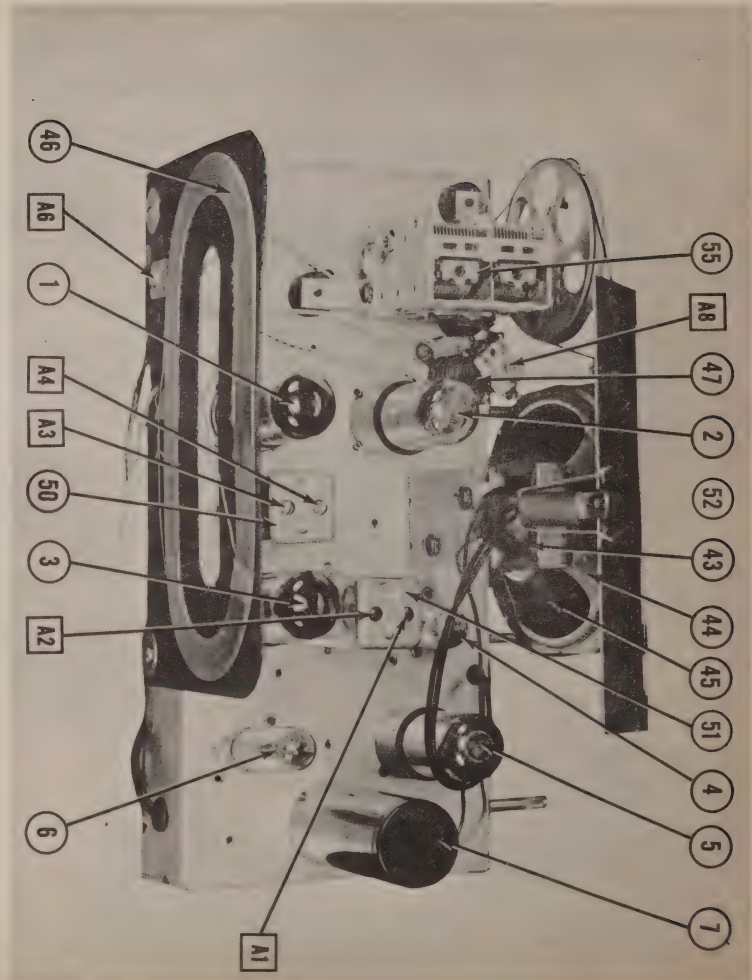
CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	1 Meg.	1	VC-4	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 25A per instructions
C	Switch		" "	M26	41	SW-A	" " " "

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	IDENTIFICATION CODES
26	220KΩ	½	IR-20	BTS-220K	Red-Red-Yl. Line Isolation
27	470Ω	½	IR-6	BTS-470	Yl.-Vi.-Br. Converter Cathode
28	4700Ω	1		BTA-4700	Yl.-Vi.-Red RF Plate Load
29	22KΩ	½	IR-9	BTS-22K	Red-Red-Or. RF Screen Dropping
30	50KΩ	½		BTS-47K	Grn.-Blk.-Or. Converter Grid
31	22KΩ	½	IR-9	BTS-22K	Red-Red-Or. Oscillator Grid
32	1000Ω	½	IR-24	BTS-1000	Br.-Blk.-Red IF Plate Decoupling
33	3.6 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
34	50KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode RF Filter
35	2 Meg.	½	IR-13	BTS-2.2 Meg.	Red-Red-Grn. AF Grid
36	470KΩ	½	IR-11	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
37	470KΩ	½	IR-11	BTS-470K	Yl.-Vi.-Yl. Output Grid
38	220Ω	½	IR-5	BW-½-220	Red-Red-Br. Output Cathode
39	2200Ω	½	IR-7	BTS-2200	Red-Red-Red Tone Compensation
40	330Ω	1	IR-21	BW-1-330	Or.-Or.-Br. Filter
41	220Ω	½	IR-5	BW-½-220	Red-Red-Br. "
42	39Ω	½	IR-17	BW-½-39	Or.-White-Blk. Rectifier Ballast

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
43	20402	2.82	1502	.592	Part of SPK-4	A-3876*	T22345*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRCASTLE PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105T		†Fabricate new mounting bracket.
44	PM	2.82	SPK-4	Mod. P5-X		
	CONE DIA.	VC DIA.				
45	4-9/16"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

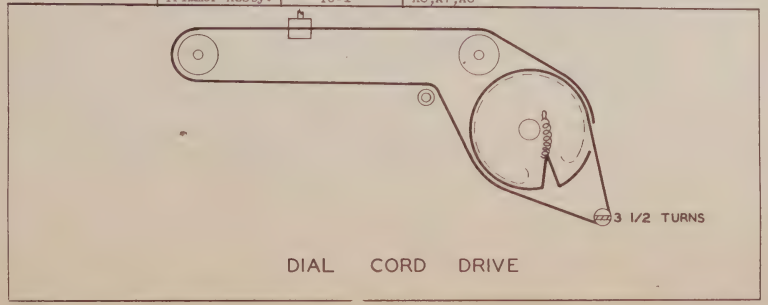
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIRCASTLE PART No.	MEISSNER PART No.	
46	Loop Ant.	.22	1.42	LL-2		
47	SW Ant.Coil	.12	.32	LA-2	14-1044	
48	BC Osc. "	1.52	62	LO-3	14-1040	
49	SW " "	02	02	LO-4	14-1046	
50	Input IF	192	192	LI-1	16-6666	
51	Output IF	20.52	192	LI-2	16-6667	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIRCASTLE PART No.		
52	Bayonet	6-8	0.15	Brown	PB1		Type 47

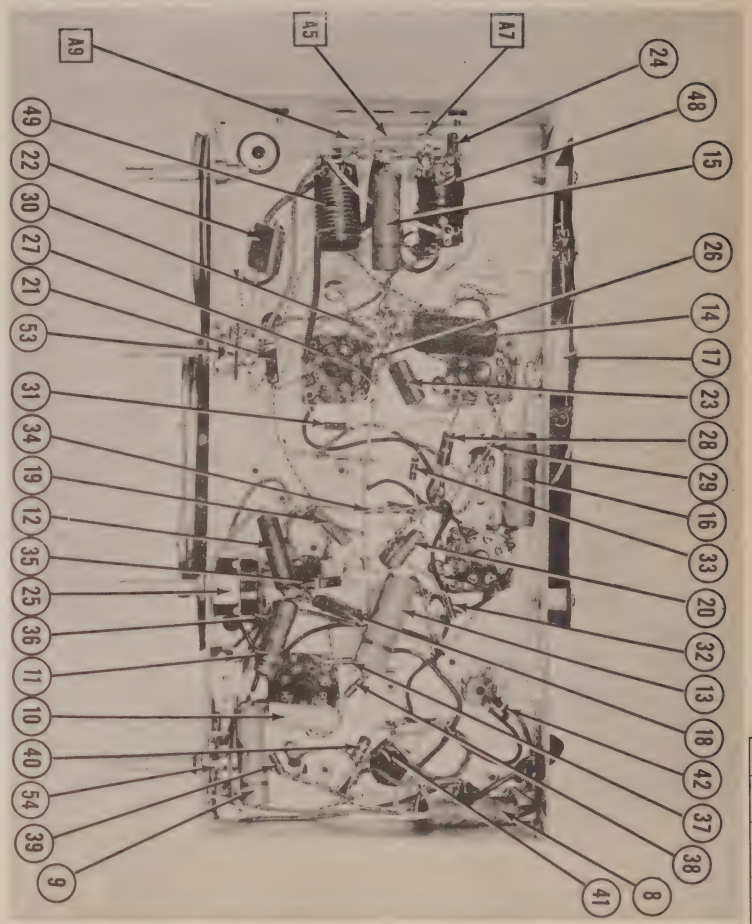
MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
53	Band Switch	SW-1	
54	Tone Switch	SW-2	
55	2 Gang Var.Cap.	GC-1	(8-368 MMF, 29-194 MMF)
A6	Trimmer Cap.	TC-7	Loop Ant. Adj.
A9	" "	TC-8	SW Ant. Adj.
	Trimmer Assby.	TC-1	A5,A7,A8

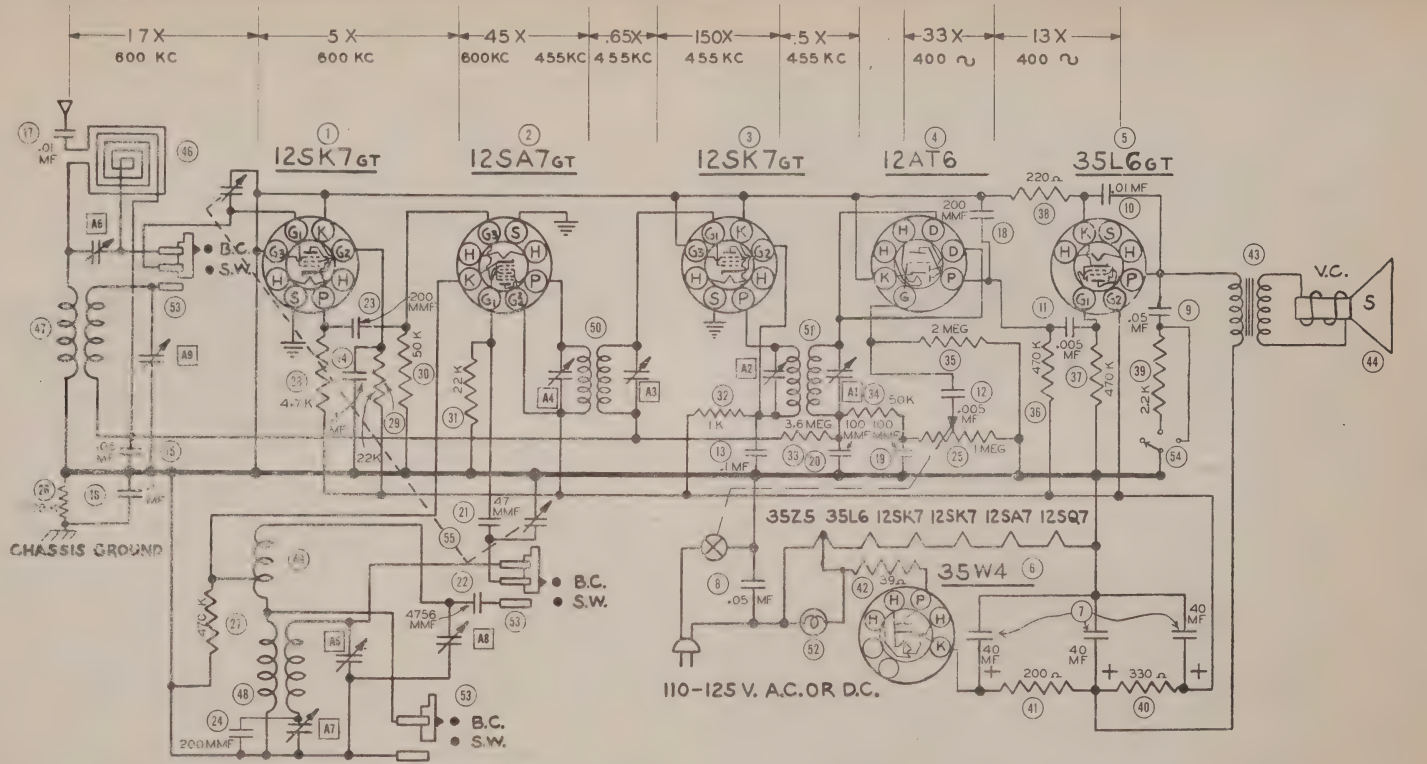


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



AIRCASTLE MODEL 5010, 5011, 5012 (Ch. 110)



Pin No	12SK7GT Volt	12SK7GT Res	12SA7GT Volt	12SA7GT Res
1	0V.	235KΩ	0V.	235KΩ
2	26V.AC	23Ω	26V.AC	23Ω
3	0V.	0Ω	95V.DC	40KΩ
4	-6V.DC	4 MEG.	95V.DC	40KΩ
5	0V.	0Ω	-2.3V.DC	18KΩ
6	58V.DC	62KΩ	0V.	1Ω
7	38V.AC	33Ω	13V.AC	11Ω
8	68V.DC	45KΩ	-55V.DC	46KΩ

IF=455KC

Pin No	12SK7GT Volt	12SK7GT Res	12AT6 Volt	12AT6 Res
1	0V.	235KΩ	-55V.DC	2 MEG.
2	38V.AC	33Ω	0V.	0Ω
3	0V.	0Ω	0V.	0Ω
4	-6V.DC	4 MEG.	13V.AC	11Ω
5	0V.	0Ω	-6V.DC	890KΩ
6	82V.DC	40KΩ	-6V.DC	890KΩ
7	49.5V.AC	44Ω	32V.DC	510KΩ
8	82V.DC	40KΩ		

Pin No	35L6GT Volt	35L6GT Res	35W4 Volt	35W4 Res
1	0V.	235KΩ	0V.	INF.
2	87V.AC	72Ω	NO LUG	NO LUG
3	100V.DC	40KΩ	87V.AC	72Ω
4	95V.DC	40KΩ	117 V.AC	72Ω
5	0V.	520 KΩ	110V.AC	130Ω
6	0V.	INF.	112 V.AC	97Ω
7	49.5V.AC	44Ω	117V.DC	40KΩ
8	6.6V.DC	230Ω		

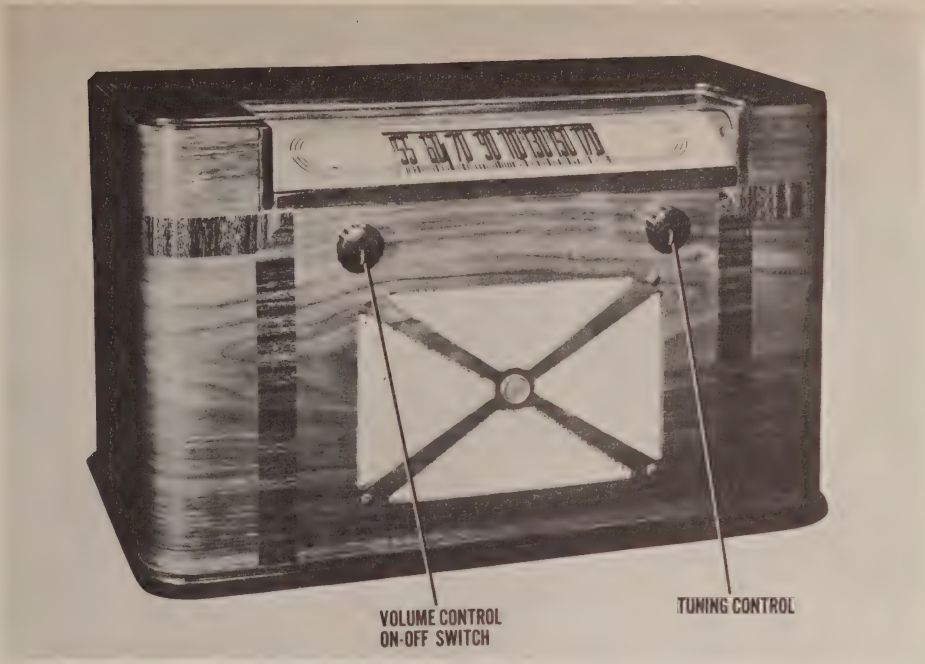
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-4

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



AIR CHIEF
MODEL 4-A-24

AIR CHIEF
MODEL 4-A-24

AIR CHIEF MODEL 4-A-24

TRADE NAME	Air Chief, Model 4-A-24 (Code No. 291-6-566)
SUPPLIER	The Firestone Tire and Rubber Co., 1200 Firestone Pkwy., Akron, Ohio
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 1A5GT Power Output.
POWER SUPPLY	1.5 Volt "A" Supply & 90 Volt "B" Supply in Battery Pack Form-Firestone Battery Pack Stock No. 4-D-1 or equiv.
RATING	210 MA @ 1.6V DC & 2.3MA @ 97V DC
TUNING RANGE—BROADCAST	528-1730KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Set volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.02 MFD.	High side to grid cap. of 1A7. Low side to chassis.	455KC	Any point where no interfering signal is received	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
250 MMF.	High side to ext. ant. (blue) lead. Low side to ext. ground (black) lead.	1730KC	Variable fully open.	"	A5	" " " "
250 MMF	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIR CHIEF PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1H5GT	1H5GT	5Z	
4	Power Output	1A5GT	1A5GT	6X	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR CHIEF PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	10	100	25E9	UT-121	PRS150-12	BR1215	TC42	M-10-150	Pwr. Supp. Bypass
6	.001	200	25E204	TC-21	484-001	DT6D1	TP404	S-6-001	1A5 Plate Bypass
7	.01	120	25E151	TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
8	.01	120	25E151	TC-11	484-01	DT4S1	TP421	S-4-01	" "
9	.5	200	25E224	TC-5	484-.5	DT4P5	TP431	S-4-5	RF Bypass Pwr. Supp.
10	.05	200	25E216	TC-15	484-05	DT4S5	TP426	S-4-05	Conv. Screen Bypass
11	.5	200	25E224	TC-5	484-.5	DT4P5	TP431	S-4-5	Filament Bypass
12	.05	200	25E216	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
13	100	500	23E3	1FM-31	1468-0001	SW5T1	MC235	MO.5-31	Audio Plate Bypass
14	100	500	23E3	1FM-31	1468-0001	SW5T1	MC235	MO.5-31	IF Bypass Vol. Cont.
15	250	500	23E42	1FM-325	1468-00025	SW5T25	MC240	MO.5-325	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR CHIEF PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	1	28E15	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 16A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

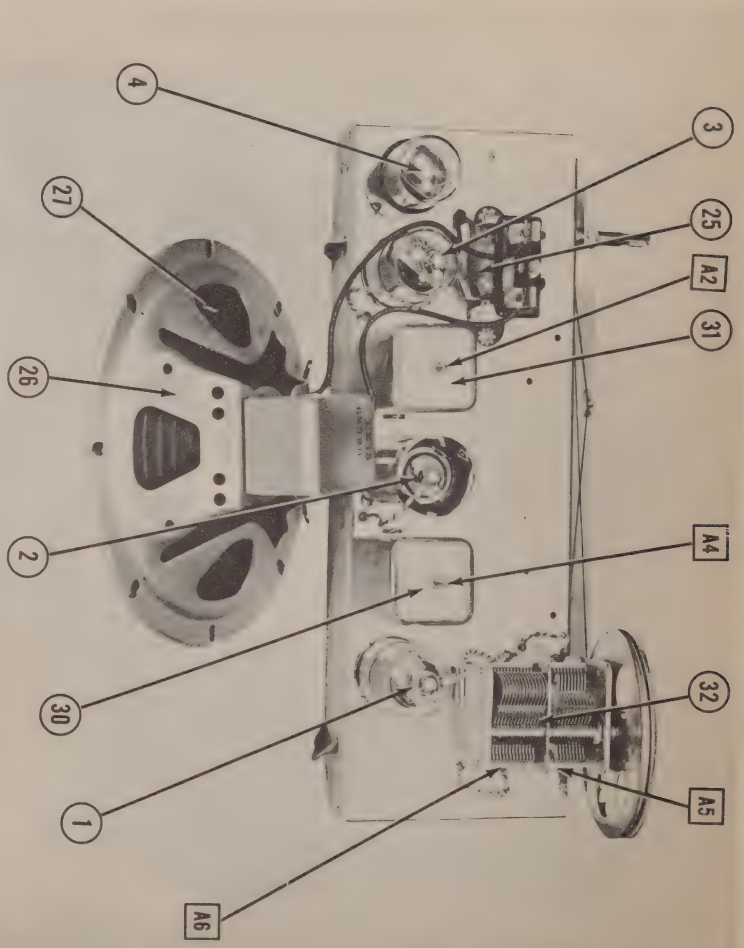
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR CHIEF PART No.	IRC PART No.	IDENTIFICATION CODES
17	100KΩ	1/3	27E104	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
18	22KΩ	½	27E223	BTS-22K	Red-Red-Or. Osc. Screen Dropping
19	3.3 Meg.	½	27E335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
20	4.7 Meg.	½	27E475	BTS-4.7 Meg.	Yl.-Vi.-Grn. " "
21	10 Meg.	½	27E106	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
22	1 Meg.	½	27E105	BTS-1 Meg.	Br.-Blk.-Grn. 1st AF Plate Load
23	3.3 Meg.	½	27E335	BTS-3.3 Meg.	Or.-Or.-Grn. Output Grid
24	560Ω	½	27E561	BTS-560	Grn.-Blue-Br. Bias
33	47Ω	1/3	27E470	BW-½-47	Yl.-Vi.-Blk. Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIR CHIEF PART No.	STANCOR PART No.	THORDAR'N PART No.	INSTALLATION NOTES
25	2500Ω	3.85Ω	150Ω	.6Ω	22E4	A-3857	T22S48	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

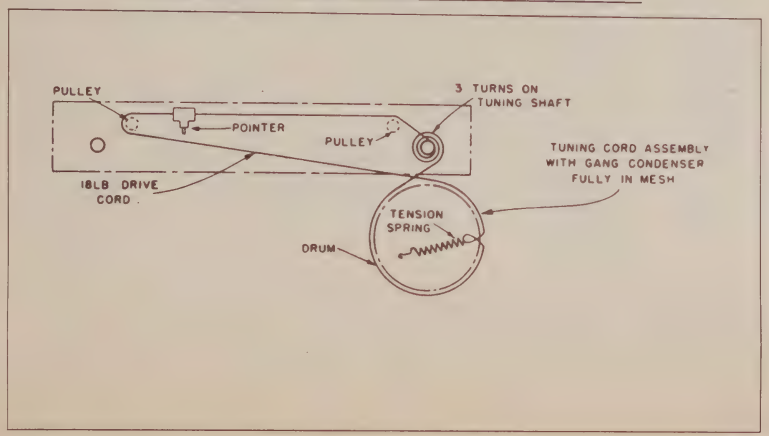
ITEM No.	RATINGS		REPLACEMENT DATA: AIR CHIEF PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
26	FIELD PM	VC IMP. 3.85Ω	1E15	ST-108 Mod. P6-X		
27	CONE DIA. 6½"	VC DIA. 1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

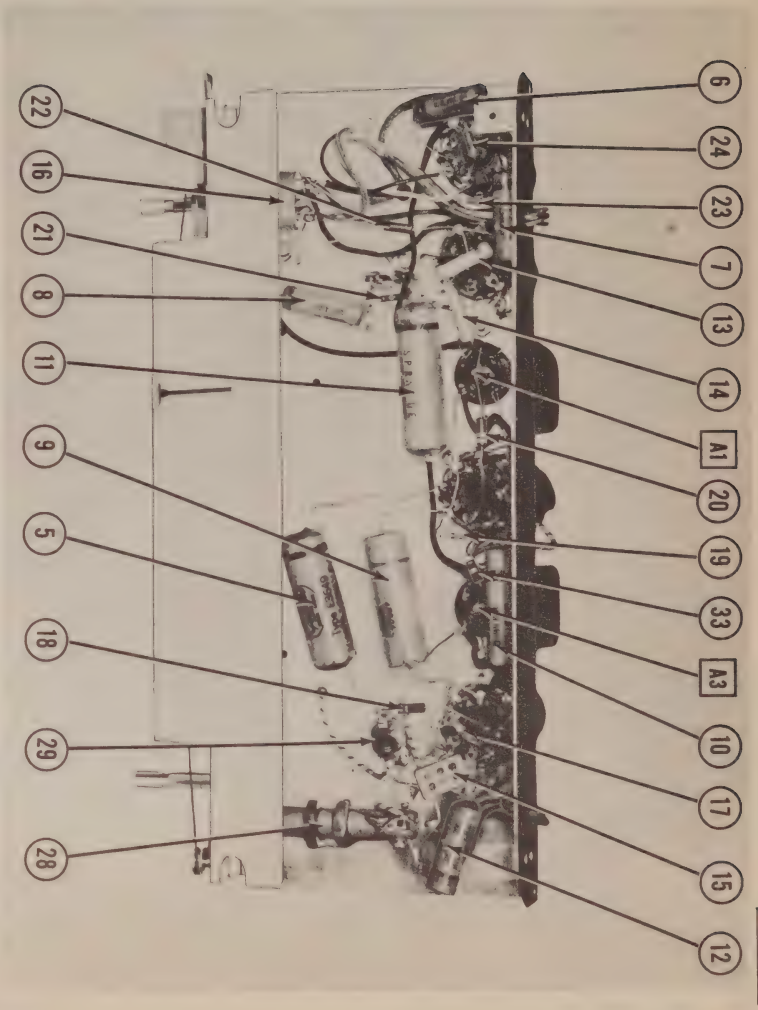
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: AIR CHIEF PART No.	REPLACEMENT DATA: MEISSNER PART No.	INSTALLATION NOTES
28	Ant. Coil	19Ω	2Ω	20E32	14-1026	
29	Osc. "	1.5Ω	5.5Ω	20E77	14-1040	
30	Input IF	11Ω	11Ω	20E21	16-5740	
31	Output IF	10Ω	10Ω	20E35	16-5742	

MISCELLANEOUS

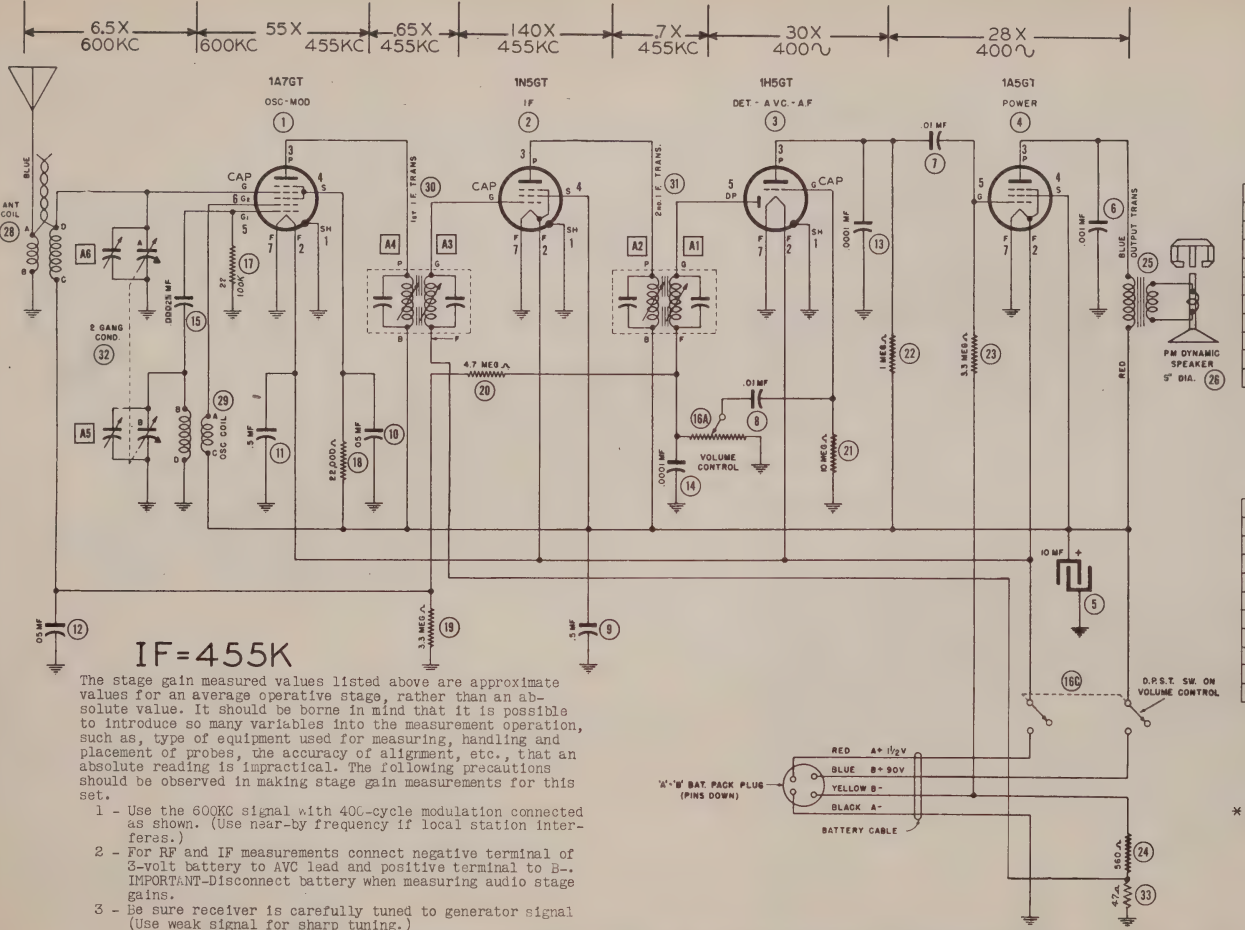
ITEM No.	PART NAME	AIR CHIEF PART No.	NOTES
32A	2 Gang Var. Cap.	24E19	2 Hole Mtg. (19-470, 18-186MMF)
B	" " " "	24E4	3 Hole Mtg. " "
	Cabinet	7E57	Wood
	Dial Scale	36E21	
	Dial Pointer	35E10	
	Dial Indicator	36E20	"On-Off"
	Knob	37E30-1	4 Prong Battery Cable
	Plug	17E3-4	
	Throw Arm	46E5	On-Off Indicator
	Spring	6SE3	For Dial Indicator



CHASSIS—BOTTOM VIEW



AIR CHIEF MODEL 4-A-24



Pin No.	1A7GT Volt.	1A7GT Res	1N5GT Volt	1N5GT Res.
1	0V.	0Ω	0V.	0Ω
2	1.6V.DC	*	1.6V.DC	*
3	92V.DC	400KΩ	92V.DC	400KΩ
4	61V.DC	420KΩ	92V.DC	400KΩ
5	-1.5V.DC	100KΩ	0V.	INF.
6	92V.DC	400KΩ	0V.	1.9MEG.
7	0V.	0Ω	0V.	0Ω
8	0V.	INF.	0V.	INF.
Cap	0V.	1.9MEG.	0V.	50Ω

Pin No.	1H5GT Volt.	1H5GT Res	1A5GT Volt	1A5GT Res.
1	0V.	0Ω	0V.	INF.
2	1.6V.DC	*	1.6V.DC	*
3	55V.DC	1.9MEG.	87V.DC	400KΩ
4	0V.	INF.	92V.DC	400KΩ
5	-1.1V.DC	400KΩ	-15V.DC	3MEG.
6	0V.	INF.	-6V.DC	600Ω
7	0V.	0Ω	0V.	0Ω
8	0V.	INF.	0V.	INF.
Cap	0V.	10MEG.		

* DO NOT USE OHMMETER TO CHECK FILAMENT.

IF=455K

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. The following precautions should be observed in making stage gain measurements for this set.

1 - Use the 600KC signal with 400-cycle modulation connected as shown. (Use near-by frequency if local station interferes.)
2 - For RF and IF measurements connect negative terminal of 3-volt battery to AVC lead and positive terminal to B-. IMPORTANT-Disconnect battery when measuring audio stage gains.
3 - Be sure receiver is carefully tuned to generator signal (Use weak signal for sharp tuning.)

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

473-5

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIR CHIEF
MODEL 4-A-25

AIR CHIEF
MODEL 4-A-25

AIR CHIEF MODEL 4-A-25

TRADE NAME	Air Chief Model 4-A-25 (Code No. 291-6-572)
SUPPLIER	The Firestone Tire and Rubber Co., 1200 Firestone Pkwy. Akron, Ohio
TYPE SET	AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	530-1730KC RATING .235 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect capacitor in series with the low side of the signal generator and chassis. Set volume control at maximum volume and output of signal generator no higher than is necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.02 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	Any point where no interfering signal is received.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output. If isolation trans. is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
250 MMF.	High side to ext. ant. (blue) lead. Low side to grnd. (black) lead.	1730KC	Variable fully open.	"	A5	Adjust for maximum output.
250 MMF.	"	1400KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIR CHIEF PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR CHIEF PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	25E1	EL-25	AF1010D	UF6BJ34	FP214	DY-2x50-150	■ Filter
B	50	150							▲ "
7	.05	400	23E416	TC-15	484-.05	DT4S5	TP426	S-4-05	Line Filter
8	.01	200	23E211	TC-11	484-.01	DT4S1	TP421	S-4-01	Output Plate Bypass
9	.01	200	23E211	TC-11	484-.01	DT4S1	TP421	S-4-01	Audio Coupling
10	.01	200	23E211	TC-11	484-.01	DT4S1	TP421	S-4-01	" "
11	.1	200	23E218	TC-1	484-.1	DT4P1	TP428	S-4-1	AVC Filter
12	100	500	23E39	1FM-31	1468-.0001	5W5T1	MC235	MO.5-31	Audio Plate Bypass
13	100	500	23E39	1FM-31	1468-.0001	5W5T1	MC235	MO.5-31	IF Bypass (Vol. Cont.)
14	100	500	23E39	1FM-31	1468-.0001	5W5T1	MC235	MO.5-31	IF Bypass (Diode)
15	100	500	23E39	1FM-31	1468-.0001	5W5T1	MC235	MO.5-31	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR CHIEF PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	1	28E1	MK401	D13-133	AM-60-Z	See Inst. Note 1
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 16A per instructions.
C	Switch		" "	M26	41	SW-A	" " " " "

Inst. Note 1 - Wrap scotch tape around shaft adjacent to guide disc. for drive cord surface.

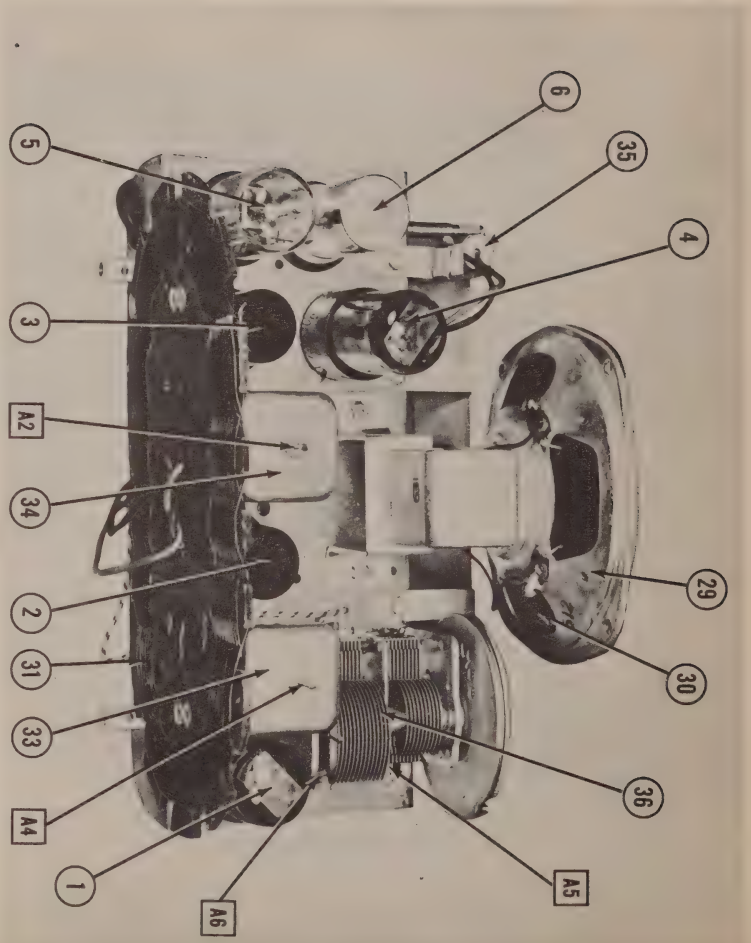
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR CHIEF PART No.	IRC PART No.	IDENTIFICATION CODES
17	22KΩ	1/3	27E223	BTS-22K	Red-Red-Or. Oscillator Grid
18	10 Meg.	1/3	27E106	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
19	3.3 Meg.	1/3	27E335	BTS-3.3 Meg.	Or.-Or.-Grn. " "
20	68K	1/3	27E683	BTS-68K	Blue-Gray-Or. Diode RF Filter
21	3.3 Meg.	1/3	27E335	BTS-3.3 Meg.	Or.-Or.-Grn. AF Grid
22	220KΩ	1/3	27E224	BTS-220K	Red-Red-Yl. AF Plate Load
23	470KΩ	1/3	27E474	BTS-470K	Yl.-Vi.-Yl. Output Grid
24	150Ω	1/3	27E151	BW-½-150	Br.-Grn.-Br. Output Cathode
25	2200Ω	1	27E222-3	BTA-2200	Red-Red-Red Filter
26	47Ω	1/2	27E470-2	BW-½-47	Yl.-Vi.-Blk. Surge Limiter
27	100Ω	1/3	27E101	BW-½-100	Br.-Blk.-Br. Pilot Light Shunt

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIR CHIEF PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
28	4600Ω	3.5Ω	237Ω	.96Ω	22E2	A-3877	T22S46		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: AIR CHIEF PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-107*		*Fabricate new mounting bracket.
29	PM	3.5Ω	1E9	Mod. P5-V		
	CONE DIA.	VC DIA.				
30	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

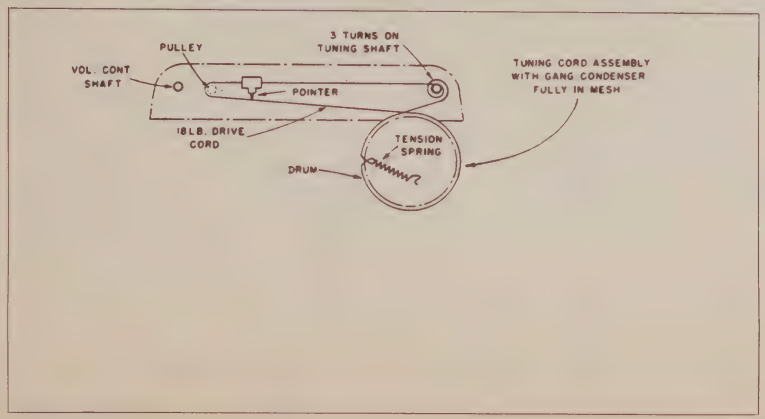
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: AIR CHIEF PART No.	REPLACEMENT DATA: MEISSNER PART No.	INSTALLATION NOTES
31	Loop Ant.		.5Ω	20E24		
32	Osc. Coil	.5Ω	6.5Ω	20E132	14-1040	
33	IF Input	11Ω	11Ω	20E21	16-5740	
34	IF Output	11Ω	10Ω	20E22	16-5742	

DIAL LIGHT

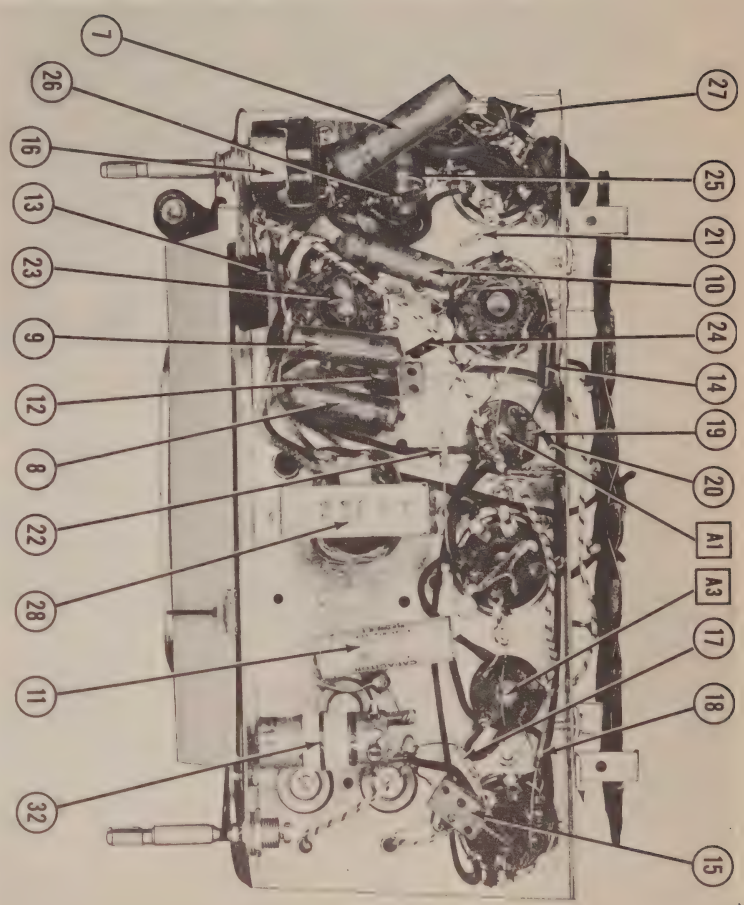
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: AIR CHIEF PART No.		INSTALLATION NOTES
35	Bayonet	6-8	0.15	Brown	40E1		#47

MISCELLANEOUS

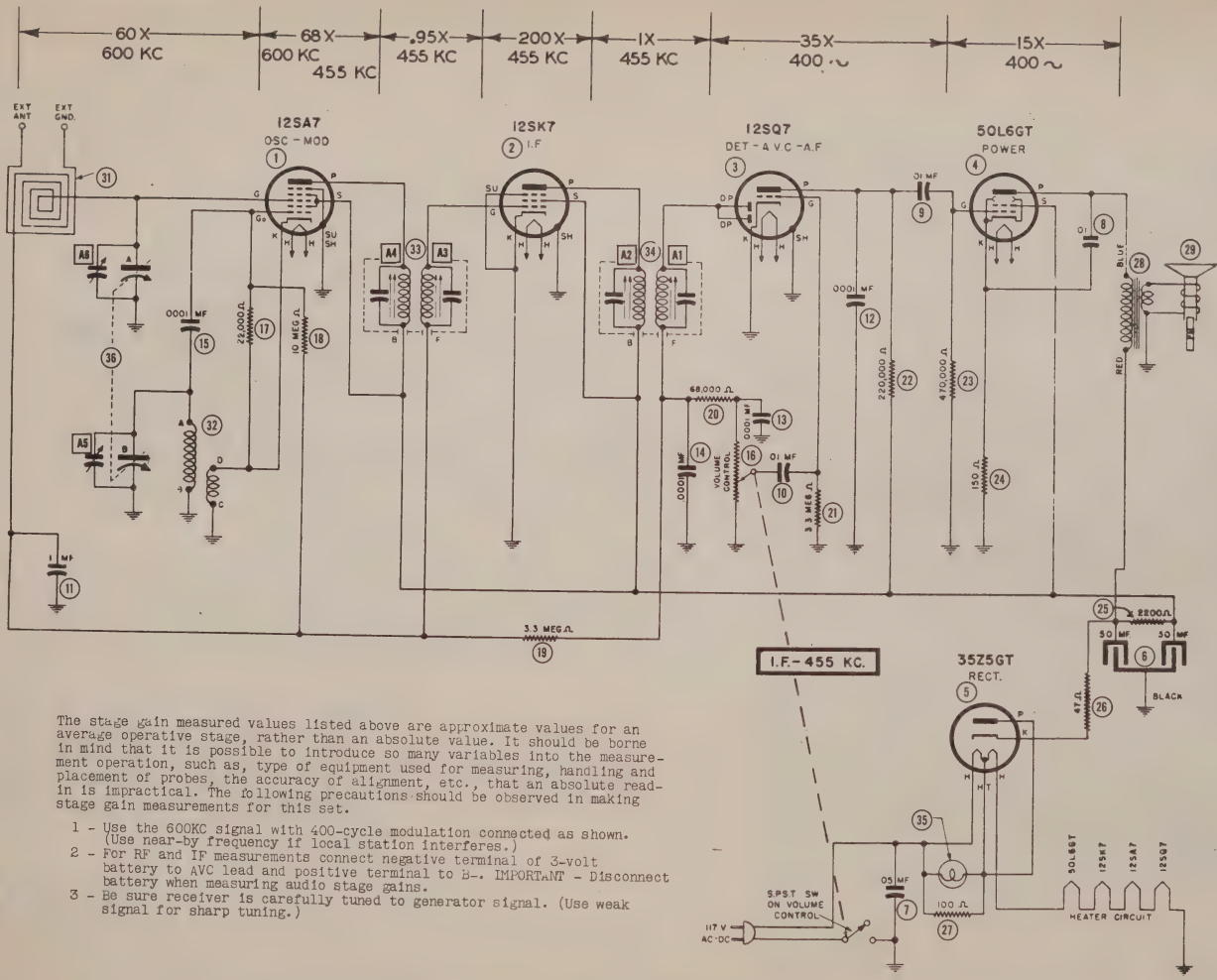
ITEM No.	PART NAME	AIR CHIEF PART No.	NOTES
36	2 Gang Var. Cap	24E2	(39-450 MMF, 33-107 MMF)
	Cabinet	7E75-2	Ivory Plastic
	Dial Scale	26E23	
	Dial Pointer	25E8	
	Knob	37E27-19	



CHASSIS—BOTTOM VIEW



AIR CHIEF MODEL 4-A-25



Pin No.	12SA7GT Volt.	12SA7GT Res	12SK7 Volt	12SK7 Res.
1	0V.	0Ω	0V.	0Ω
2	12.5V.AC	14Ω	37.5V.AC	39Ω
3	78 V.DC	100 KΩ	0V.	0Ω
4	78V.DC	100KΩ	-37 V.DC	3.1 MEG.
5	-6.9V.DC	22 KΩ	0V.	0Ω
6	0V.	.5Ω	78 V.DC	100 KΩ
7	25.5V.AC	26Ω	25.5V.AC	26Ω
8	-37 V.DC	3.1 MEG	78 V.DC	100 KΩ

Pin No.	12SQ7 Volt.	12SQ7 Res	50L6GT Volt	50L6GT Res.
1	0V.	0Ω	0V.	0Ω
2	-6.7 V.DC	4 MEG.	37.5V.AC	39Ω
3	0V.	0Ω	112 V.DC	100 KΩ
4	-7.7 V.DC	560 KΩ	78 V.DC	100 KΩ
5	-7.7 V.DC	560 KΩ	0V.	520 KΩ
6	48 V.DC	255 KΩ	0V.	INF.
7	12.5V.AC	14Ω	87 V.AC	80Ω
8	0V.	0Ω	4.9 V.DC	150Ω

Pin No.	35Z5GT Volt.	35Z5GT Res
1	0V.	INF.
2	117 V.AC	109Ω
3	113 V.AC	105Ω
4	0V.	INF.
5	113 V.AC	105Ω
6	0V.	INF.
7	87 V.AC	80Ω
8	122 V.DC	100 KΩ

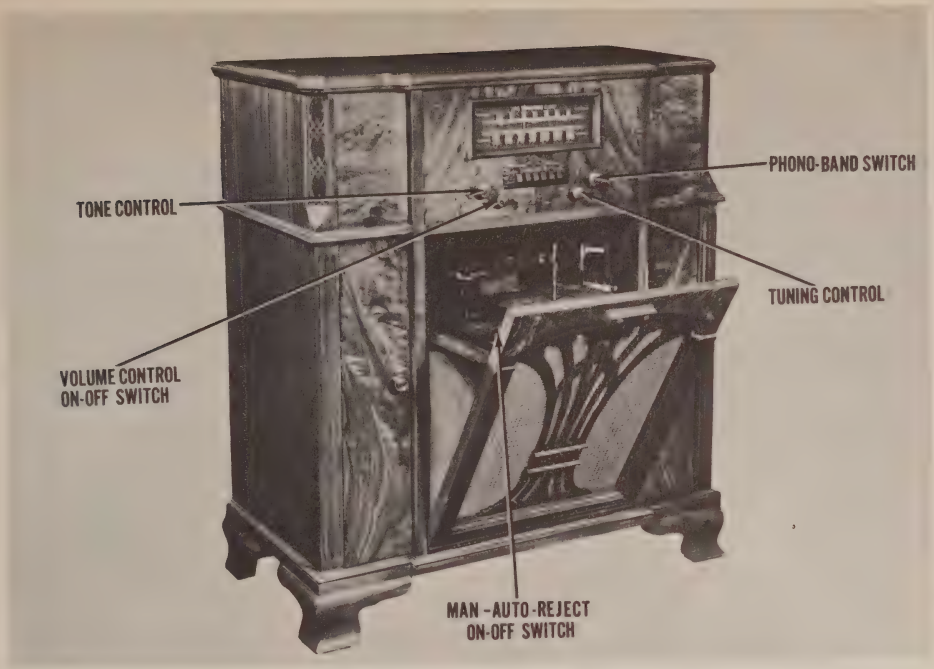
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. The following precautions should be observed in making stage gain measurements for this set.

1 - Use the 600KC signal with 400-cycle modulation connected as shown. (Use near-by frequency if local station interferes.)
2 - For RF and IF measurements connect negative terminal of 3-volt battery to AVC lead and positive terminal to B-. IMPORTANT - Disconnect battery when measuring audio stage gains.
3 - Be sure receiver is carefully tuned to generator signal. (Use weak signal for sharp tuning.)

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 473-6

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



AIR CHIEF MODEL 4-A-37

TRADE NAME	Air Chief, Model 4-A-37 (Code No. 177-5-4A37)
SUPPLIER	The Firestone Tire & Rubber Co., 1200 Firestone Pkwy., Akron, Ohio
TYPE SET	AC Operated Radio-Phonograph Combination Superheterodyne-Self Contained Loop Ant.
TUBES (EIGHT)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-1st AF, 6SQ7 AVC-Phase Inv., (2) 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-120 Volts AC — RATING .650 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC — SHORT WAVE 9.4-15.4 MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and adjust pointer to last reference mark at low freq. end of dial. When aligning, keep loop in approximately same relative position to chassis as when in cabinet. Volume control should be at maximum volume, and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
250 MMFD	High side to ext. ant. lead (red). Low side to chassis.	455KC	BC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
250 MMFD	"	1620KC	"	1620KC	"	A5	" " " "
250 MMFD	"	1500KC	"	Tune for maximum output.	"	A6	Rock variable and tune for maximum output. Check calibration at 1000KC.
400Ω	"	15.4MC	SW	Variable fully open.	"	A7	Tighten SW Osc. trimmer down to maximum capacity. Open to the second peak. Adjust for maximum output. Turn signal generator to 16.3 and check for image.
400Ω	"	15MC	"	Tune for maximum output.	"	A8	Rock variable and adjust for maximum output.
400Ω	"	9.7MC	"	"	"	A9	Rock variable and adjust for maximum output. Recheck calibration at 15.4 MC.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIR CHIEF PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-1st AF	6SQ7	6SQ7	8Q	
5	Inverter-AVC	6SQ7	6SQ7	8Q	
6	Power Output	6V6GT	6V6GT	7AC	
7	Power Output	6V6GT	6V6GT	7AC	
8	Rectifier	5Y3G	5Y3G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR CHIEF PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	30	450	25214	EL-424	AF444J4A	UP9DJ53	FP429	DY-406	♠ Filter
B	20	450							■ "
C	20	450							▲ "
D	20	25							Cath. Bypass
10	.005	600	25031	TC-25	684-005	DT6D5	TP408	S-6-005	Line Bypass
11	.003	600	25184	TC-23	684-003	DT6D3	TP406	S-6-003	Output Plate Bypass
12	.003	600	25184	TC-23	684-003	DT6D3	TP406	S-6-003	" " "
13	.02	600	25195	TC-12	684-02	DT6S2	TP412	S-6-02	Audio Coupling
14	.01	600	25194	TC-11	684-01	DT6S1	TP410	S-6-01	" "
15	.02	600	25195	TC-12	684-02	DT6S2	TP412	S-6-02	" "
16	.01	600	25194	TC-11	684-01	DT6S1	TP410	S-6-01	" "
17	.01	600	25194	TC-11	684-01	DT6S1	TP410	S-6-01	" "
18	.002	600	25185	TC-22	684-002	DT6D2	TP405	S-6-002	Tone Compensation
19	.003	600	25184	TC-23	684-003	DT6D3	TP406	S-6-003	" "
20	.1	600	25215	TC-1	684-1	DT6P1	TP418	S-6-1	AVC Filter
21	.05	600	25196	TC-15	684-05	DT6S5	TP415	S-6-05	IF Cath. Bypass
22	.05	600	25196	TC-15	684-05	DT6S5	TP415	S-6-05	RF Screen Bypass
23	.01	600	25194	TC-11	684-01	DT6S1	TP410	S-6-01	RF Plate Decoupling
24	.005	600	25031	TC-25	684-005	DT6D5	TP425	S-6-005	Osc. Anode Coupling
25	.05	600	25196	TC-15	684-05	DT6S5	TP415	S-6-05	AVC Filter
26	47	500	25193	1FM-45	1468-00005	5W5Q5	MC225	MO.5-45	Audio Plate Bypass
27	100	500	25188	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Diode Filter
28	100	500	25188	1FM-34	1468-0001	5W5T1	MC235	MO.5-31	" "
29	24	500	25192	MS-425	1468-000025	5W5Q25	MC220	MO.5-425	AVC Coupling
30	47	500	25193	1FM-45	1468-00005	5W5Q5	MC225	MO.5-45	Osc. Grid Capacitor
31	100	500	25188	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	RF Coupling
32	240	500	25187	1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Phono Tone Comp.
33	1350	500	25213						Fixed Trimmer PB
34	215	500	25212						Fixed Padder PB

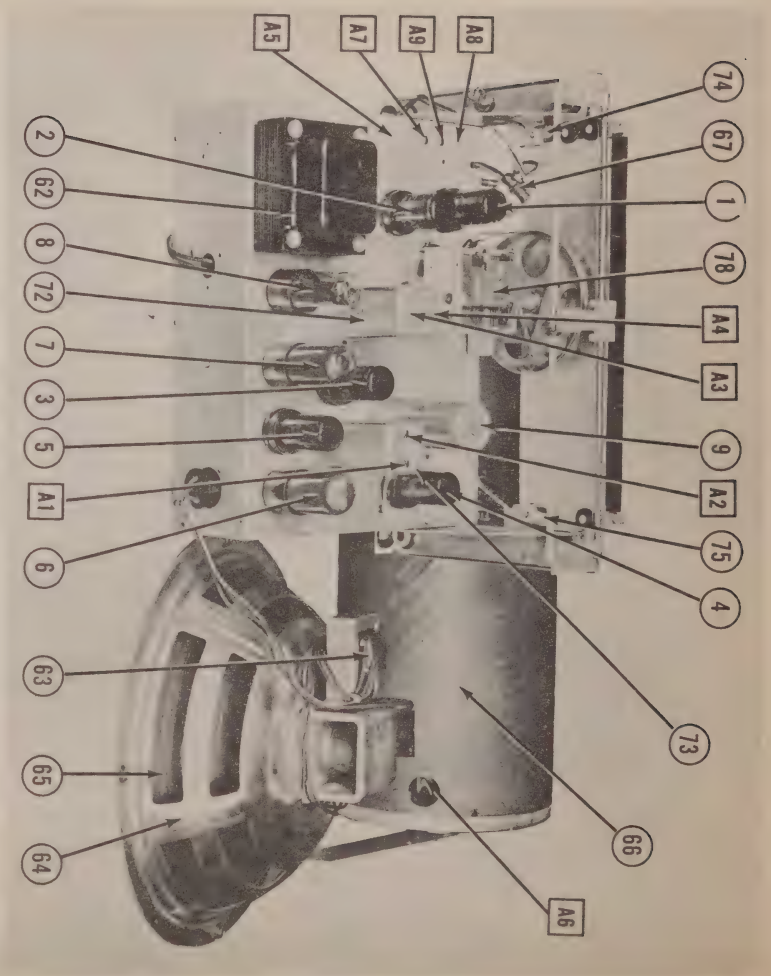
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR CHIEF PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
35A	3 Meg.	1	78020	TM257	D18-139X	AT-116	Volume Control
B	Shaft		Not Req.	SS25	E	KSS-3	Attach to 35A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
36A	2 Meg.	1	78072	MK403	D13-139	AM-66-Z	Tone Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 36A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR CHIEF PART No.	IRC PART No.	IDENTIFICATION CODES
37	100KΩ	½	77214	BTS-100K	Br.-Blk.-Yl. AVC Network
38	1500Ω	½	77263	BTS-1500	Br.-Grn.-Red RF Plate Load
39	1000Ω	½	77262	BTS-1000	Br.-Blk.-Red RF Plate Decoupling
40	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Converter Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIR CHIEF PART No.	IRC PART No.	
41	22KΩ	½	77286	BTS-22K	Red-Red-Or. Oscillator Grid
42	10KΩ	2	77013	BT-2-10K	Br.-Blk.-Or. Voltage Dropping
43	22KΩ	1	77069	BTA-22K	Red-Red-Or. Voltage Dropping
44	1500Ω	½	77263	BTS-1500	Br.-Blk.-Red IF Cathode
45	47KΩ	½	77213	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
46	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. Diode Load
47	10 Meg.	½	77274	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
48	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
49	2.2 Meg.	½	77270	BTS-2.2 Meg.	Red-Red-Grn. AVC Load
50	1 Meg.	½	77219	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
51	10 Meg.	½	77274	BTS-10 Meg.	Br.-Blk.-Blue Phase Inverter Grid
52	470KΩ	½	77217	BTS-470K	Yl.-Vi.-Yl. Phase Inverter Plate Load
53	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Output Grid
54	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Output Grid
55	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Output Grid
56	270Ω	2	77189	BW-2-270	Red-Vi.-Br. Output Cathode
57	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Tone Compensation
58	22KΩ	½	77266	BTS-22K	Red-Red-Or. " "
59	220KΩ	½	77216	BTS-220K	Red-Red-Yl. Series Phono.
60	1000Ω	2	77304	BT-2-1000	Br.-Blk.-Red Filter
61	2700Ω	4.7	77243	AB-2500	"

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIR CHIEF PART No.	STANCOR PART No.	THORDARSON PART No.	
62	117V AC @ .85A	500 CT @ .377A	5.3V AC @ 1.8A	6.3V AC @ 2.9A	94154	P-8312	T22R4	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIR CHIEF PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
63	14000Ω CT	3.9Ω	240Ω CT	.4Ω	94195	A-2312	T22S47		

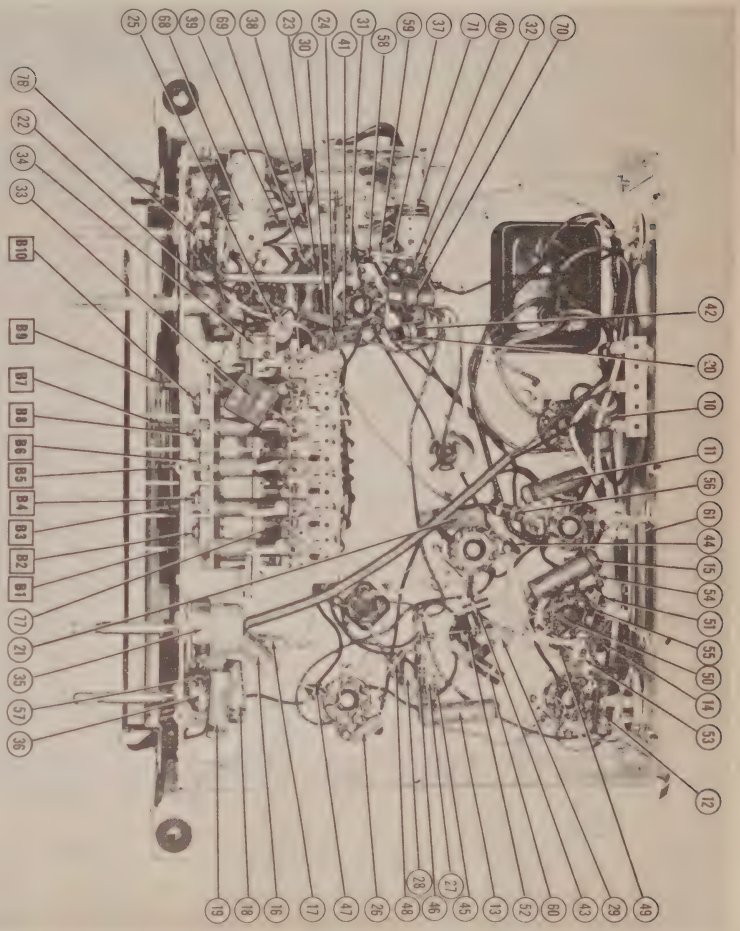
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIR CHIEF PART No.	JENSEN PART No.		
64	FIELD PM	VC IMP. 3.9Ω	81126	ST-101† Mod. P12-T		†Replace output transformer to match 8Ω voice coil.
65	CONE DIA. 11-7/8"	VC DIA. 1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AIR CHIEF PART No.	MEISSNER PART No.	
66	Loop Ant.			38552		
67	Ant. Load Coil		1.6Ω	38794		
68	SW Ant.Coil	0Ω	0Ω	38542		
69	Peaking "		2Ω	38544		
70	Wave Trap			38604		
71A	OC Osc. Coil		6Ω	38543		71A & 71B wound on same form.
71B	SW " "		0Ω			
72	Input IF	12.2Ω	12.1Ω	38536	16-6658	
73	Output IF	12.6Ω	12.2Ω	38537	16-6660	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AIR CHIEF PART No.		
74	Bayonet	6-8	0.25	Blue	42165		Type 44
75	"	6-8	0.25	"	42165		" "

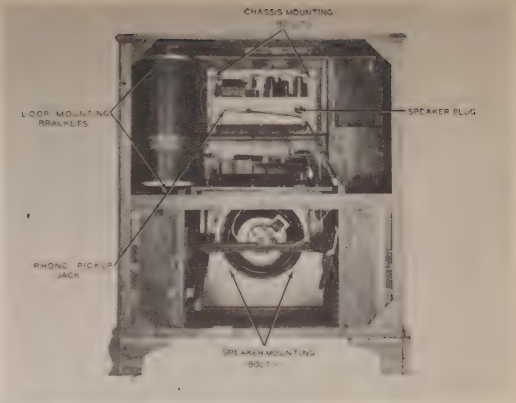
MISCELLANEOUS

ITEM No.	PART NAME	AIR CHIEF PART No.	NOTES
76	Bandswitch	90175	
77	Pushbutton Asby.	90118	
78	2-Gang Var.Cap.	26194	(13-465 MMF, 12-246 MMF)
	PB Trimmer Strip	26176	B1, B3, B5, B7, B9
	Trimmer Strip	26195	A5, A7, A8, A9
	Dial Scale	31274	
	Dial Pointer	11257	
	PB Coil Strip	38405	B2, B4, B6, B8, B10
	Antenna Trimmer	26032	A6

PUSHBUTTON PROCEDURE

The frequency ranges of pushbuttons from left to right are as follows; 550-1250 KC, 600-1350KC, 650-1450KC, 650-1450KC, 750-1600KC.

1. Make a list of desired stations making sure that each station will tune within range of the button to be used.
2. Press dial button and tune in desired station manually, making mental note of program.
3. Press 1st pushbutton from left and adjust B1 to tune in desired station.
4. Adjust B2 for maximum volume.
5. Follow same procedure for remaining buttons adjusting B3, B5, B7 and B9 to tune in desired stations and B4, B6, B8,and B10 for maximum volume.
6. Repeat entire procedure for optimum results.



DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs and felt washers from the dial panel.
2. Loosen Phillips head screw holding lead bracket to chassis. Remove leads.
3. Remove set screw from speaker plug.
4. Disconnect speaker plug from back of chassis.
5. Disconnect phono-pickup plug from back of chassis.
6. Disconnect phono-motor receptacle from plug at phono-motor and pull phono-motor leads (white with red tracer) up through the hole in the right phono-motor runner board facing rear of cabinet.
7. Loosen line cord mounting bracket from cabinet and slide line cord out from beneath it. Pull line cord up through runner board hole.
8. (a) Disconnect loop antenna plug from top of loop antenna.
   (b) Disconnect green lead plug from side of loop antenna.
9. Remove four machine bolts and washers holding chassis board to cabinet. Remove chassis.
10. Remove two Phillips head screws from the loop antenna bottom bracket, and two from the top bracket. Remove loop antenna and brackets from chassis.
11. Remove four hex nuts and lock washers holding speaker to cabinet. Remove speaker from cabinet.
12. Remove eight hex head screws and washers from chassis board. Remove chassis board from chassis.

NOTE: VOLTAGE AND RESISTANCE READING TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

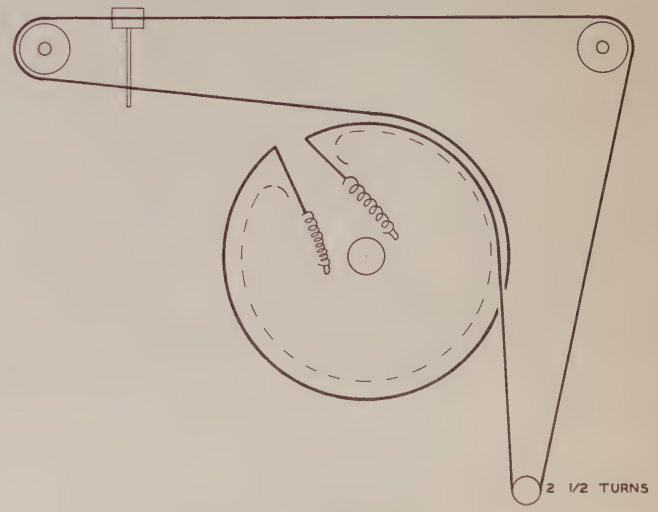
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	6.6V.AC	0V.	-4V.DC	0V.	95V.DC	0V.	145V.DC
2	6SA7	0V.	6.6V.AC	175V.DC	95V.DC	-3.4V.DC	0V.	0V.	-2V.DC
3	6SK7	0V.	0V.	0V.	-35V.DC	5.2V.DC	95V.DC	6.6V.AC	175V.DC
4	6SQ7	0V.	-65V.DC	0V.	-6V.DC	-6V.DC	85V.DC	0V.	6.6V.AC
5	6SQ7	0V.	-65V.DC	0V.	-25V.DC	-35V.DC	75V.DC	0V.	6.6VAC
6	6V6GT	0V.	6.6V.AC	295V.DC	208V.DC	0V.	208V.DC	0V.	13V.DC
7	6V6GT	0V.	0V.	295V.DC	208V.DC	0V.	0V.	6.6V.AC	13V.DC
8	5Y3GT/G	0V.	300V.DC	0V.	300V.AC	0V.	300V.AC	0V.	300V.DC

RESISTANCE READINGS

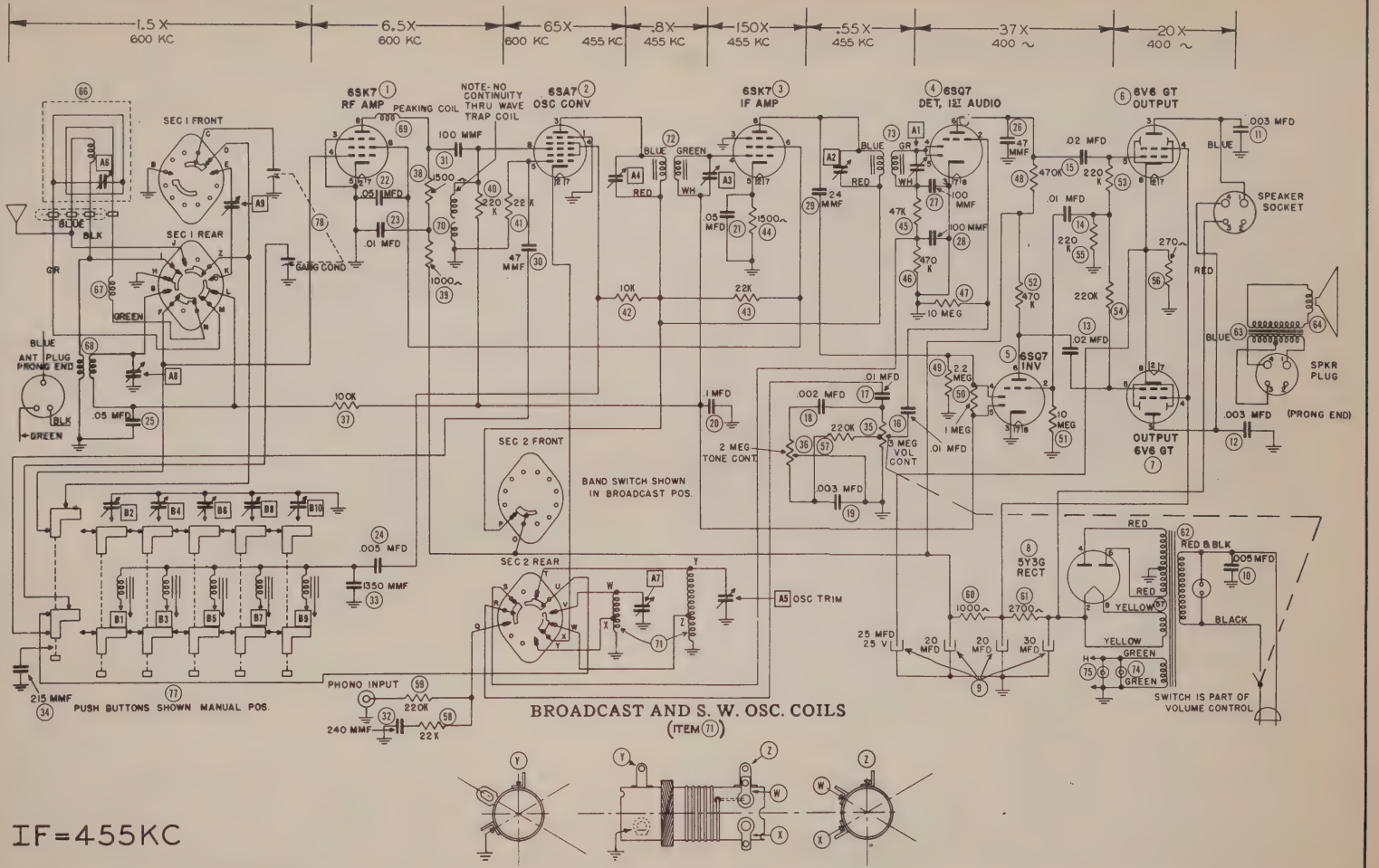
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	.1Ω	0Ω	3.3MEG.	0Ω	122KΩ	0Ω	102 KΩ
2	6SA7	0Ω	.1Ω	100KΩ	110KΩ	22 KΩ	.5Ω	0Ω	3.4MEG.
3	6SK7	0Ω	0Ω	0Ω	3.2MEG.	1500Ω	122KΩ	.1Ω	100 KΩ
4	6SQ7	0Ω	10MEG.	0Ω	430 KΩ	430 KΩ	570KΩ	0Ω	.1Ω
5	6SQ7	0Ω	10MEG.	0Ω	2 MEG.	3.2 MEG.	570KΩ	0Ω	.1Ω
6	6V6GT	INF.	.1Ω	100KΩ	100 KΩ	410KΩ	100KΩ	0Ω	250Ω
7	6V6GT	INF.	0Ω	100KΩ	100KΩ	420KΩ	INF.	.1Ω	250Ω
8	5Y3GT/G	INF.	100 KΩ	INF.	118Ω	INF.	112Ω	INF.	100KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE



IF=455KC

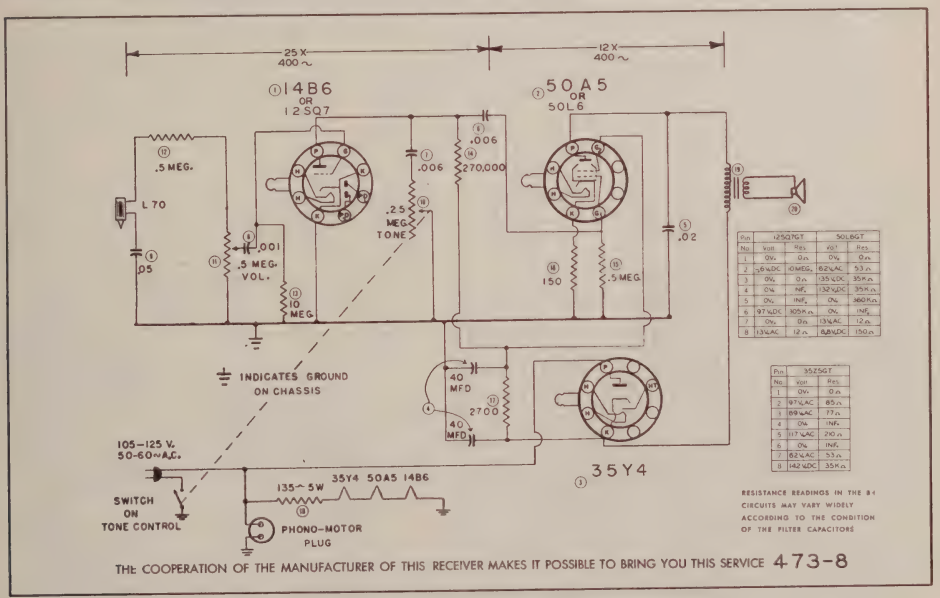
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 473-7

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

AIR KING
MODEL 4625

AIR KING MODEL 4625

TRADE NAME	Air King, Model 4625
MANUFACTURER	Air King Products Co., Inc., 1523 63rd St., Brooklyn, N.Y,
TYPE SET	AC Operated Phonograph with 3-Tube Amplifier & Speaker
TUBES (THREE)	Types, 12SQ7GT or 14B6 AF Amp., 50L6GT or 50A5 Power Output, 35Z5GT or 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC RATING .240 Amp. @ 117 Volts AC



Pin No	12SQ7GT Volt	12SQ7GT Res.	50L6GT Volt	50L6GT Res.
1	0V.	0 Ω	0V.	0 Ω
2	58 VDC	0 MEG.	62 VAC	53 Ω
3	0V.	0 Ω	135 VDC	35 KΩ
4	0V.	INF.	132 VDC	35 KΩ
5	0V.	INF.	0V.	360 KΩ
6	97 VDC	305 KΩ	0V.	INF.
7	0V.	0 Ω	13 VAC	12 Ω
8	13 VAC	12 Ω	88 VDC	150 Ω

Pin No	35Z5GT Volt	35Z5GT Res.
1	0V.	0 Ω
2	97 VAC	85 Ω
3	89 VAC	77 Ω
4	0V.	INF.
5	117 VAC	240 Ω
6	0V.	INF.
7	62 VAC	53 Ω
8	142 VDC	35 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 473-8

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIR KING PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	AF Amp.	12SQ7GT	12SQ7GT	8Q	Octal Type
B	" "	14B6	14B6	8W	Lock-In Type
2A	Power Output	50L6GT	50L6GT	7AC	
B	" "	50A5	50A5	6AA	
3A	Rectifier	35Z5GT	35Z5GT	6AD	
B	"	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR KING PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	40	150	2065	TA-440	PRSA150-40-40	BRD4415	2N511	DSB-2x40-150	Filter - Green
B	40	150							" - Red
5	.02	400	1963	TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
6	.006	600	1971	TC-26	684-006	DT6D6	TP409	S-6-006	Audio Coupling
7	.006	600	1971	TC-26	684-006	DT6D6	TP409	S-6-006	Tone Compensation
8	.001	600	1956	TC-21	684-001	DT6D1	TP404	S-6-001	Audio Coupling
9	.05	200	1967	TC-15	484-05	DT4S5	TP426	S-4-05	Phono Isolation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KING PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
10A	250KΩ	1	2473	UM149	D11-130	M-55-S	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 10A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
11A	500KΩ	1	2472	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 11A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KING PART No.	IRC PART No.	IDENTIFICATION CODES
12	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Series Phono
13	10 Meg	½	2335	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
14	270KΩ	½	2361	BTS-270K	Red-Vi.-Yl. AF Plate Load
15	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
16	150Ω	½	2372	BW-½-150	Br.-Grn.-Br. Output Cathode
17	2700Ω	1	2378	BTA-2700	Red-Vi.-Red Filter
18	13Ω	5	2238	AB-150	Line Dropping

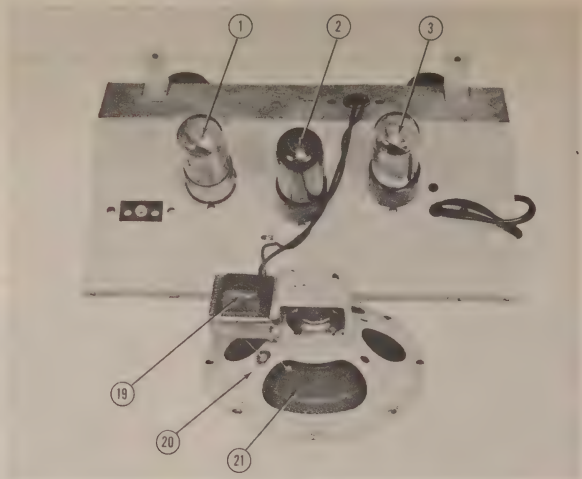
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIR KING PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
19	3400Ω	3.0Ω	260Ω	.5Ω	Part of 5855	A-3876*	T22S46*		*Bend mounting tabs down, file out slots and mount on original bracket.

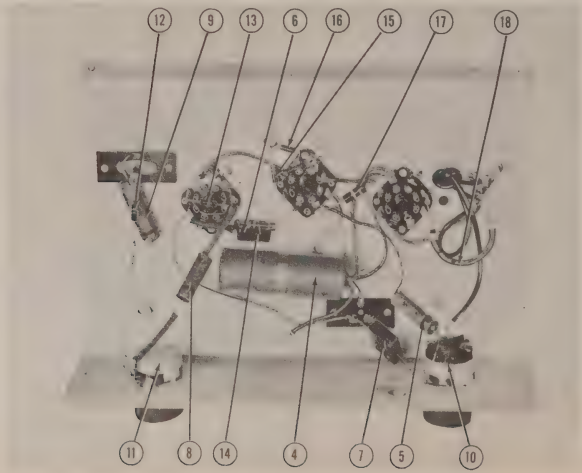
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: AIR KING PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-105		
20	PM	3.0Ω	5855	Mod. P5-X		
	CONE DIA.	VC DIA.				
21	4-5/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

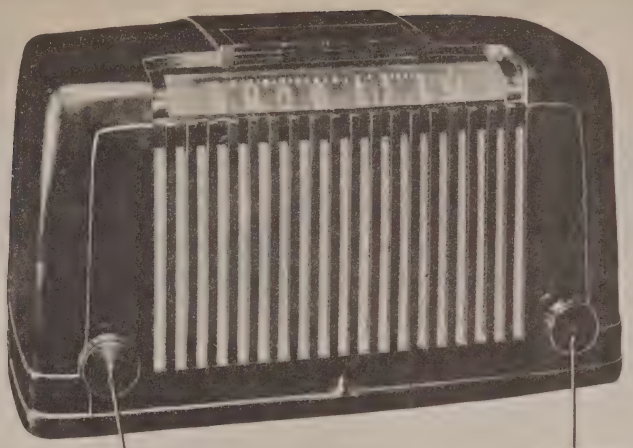
CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



ARVIN
MODELS 552AN, 552N (CH. RE-231);
555, 555A (CH. RE-202)



ARVIN
MODELS 552AN, 552N (CH. RE-231);
555, 555A (CH. RE-202)

ARVIN MODEL 555

TRADE NAME	Arvin, Models 552AN & 552N (Ch. RE-231), 555 & 555A (Ch. RE-202)
MANUFACTURER	Noblitt-Sparks Industries, Inc., Columbus, Ind.
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna - Models 555 and 555A Incorporate Pushbuttons
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1600KC RATING .270 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer to first notch from right end of dial backplate. Use isolation transformer if available. If not connect a capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05MFD.	High side to pin 8 (grid) of 12SA7. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
50 MMFD	High side to ext. ant. clip.(Remove black lead from clip). Low side to B-.	1620KC	"	"	A5	Adjust for maximum output.
50 MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "

PUSHBUTTON ALIGNMENT

1. Turn receiver on and allow to warm up for 10 or 15 minutes.
2. Lift pushbutton to be set up and loosen locking screw.
3. With locking screw depressed completely tune in desired station carefully with manual tuning control.
4. With locking screw still completely depressed tighten locking screw firmly.
5. Check accuracy by detuning slightly with manual tuning control and then returning with the pushbutton. If pushbutton is slightly off repeat last three steps.
6. To set up remaining buttons follow the same procedure as outlined above.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ARVIN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ARVIN PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	C19340	TA-240	PRSA150-40-	BRL4215	2N514	M-2x40-150	Filter - Red Dot
B	20	150			40				" - Blue Dot
7	.05	400	C20063-503	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.02	400	C20068-203	TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass §
9	.05	200	C20067-503	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
10	.2	400	C20068-204	TC-2	484-.2	DT4P2	TP429	S-4-2	Line Isolation
11	.01	400	A19765	TC-11	484-01	DT4S1	TP421	S-4-01	Ant. Isolation
12	2000	500	C20128-202	1FM-22	1467-002	1W5D2	MC457	MW.5-22	Audio Coupling
13	500	500	C20065-501	1FM-35	1468-0005	SW5T5	MC245	M0.5-45	Audio Plate Bypass
14	2000	500	C20128-202	1FM-22	1467-002	1W5D2	MC457	MW.5-22	Audio Coupling
15	250	500	C20065-251	1FM-325	1468-00025	SW5T25	MC240	M0.5-325	IF Bypass Vol. Cont.
16	50	500	C20065-500	1FM-45	1468-00005	SW5Q5	MC225	M0.5-45	Osc. Grid Capacitor

§In some sets Item 8 Capacitor is connected from plate to screen instead of plate to cathode of output tube.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	1 Meg.	1	C19389	MK402	D13-137	AM-63-Z	Vol. Cont.
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

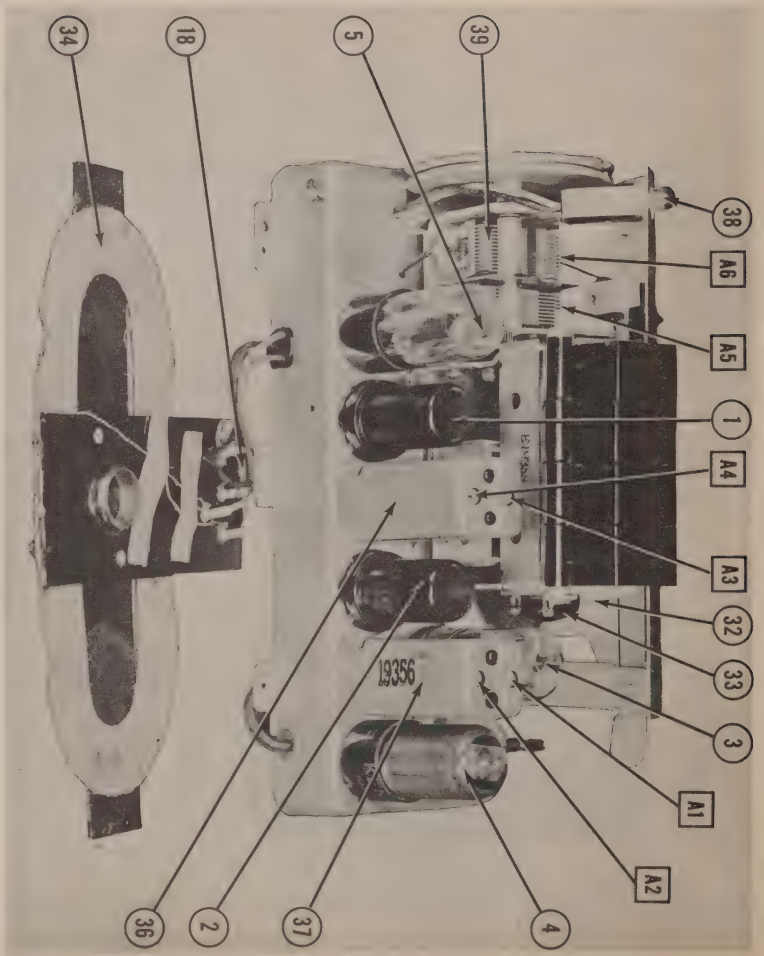
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	IDENTIFICATION CODES
18	10KΩ	½	C20060-103	BTS-10K	Br.-Blk.-Or. Loop Primary Shunt
19	330KΩ	½	C20060-334	BTS-330K	Or.-Or.-Yl. Line Isolation
20	22KΩ	½	C20060-223	BTS-22K	Red-Red-Or. Oscillator Grid
21	10 Meg.	½	C20060-106	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
22	2.2 Meg.	½	C20060-225	BTS-2.2 Meg	Red-Red-Grn. " "
23	15 Meg.	½	C20060-156	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
24	470KΩ	½	C20060-474	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
25	470KΩ	½	C20060-474	BTS-470K	Yl.-Vi.-Yl. Output Grid
26	150Ω	½	C20060-151	BW-½-150	Br.-Grn.-Br. Output Cathode
27	12KΩ	1	C20070-123	BTA-12K	Br.-Red-Or. Bias
28	22Ω	½	C20060-220	BW-½-22	Red-Red-Blk. Surge Limiter
29	330Ω	½	C20060-331	BW-½-330	Or.-Or.-Br. Pilot Light Shunt

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000~)	REPLACEMENT DATA: ARVIN PART NO.	STANCOR PART NO.	THORDARSON PART NO.	INSTALLATION NOTES
30	.028A	380	8 Henries	AC19357-1	C-1707*	T20C52*	*Drill new mounting holes

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ARVIN PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
31	2500Ω	3.3Ω	110Ω	.4Ω	AC19358-1	A-3876	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ARVIN PART No.	JENSEN PART No.		
32	FIELD	VC IMP.	C19393	ST-113† Mod. P4-X		†Fabricate new mounting bracket.
	PM	3.3Ω				
33	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			
	4"	1/2"				

R F COILS

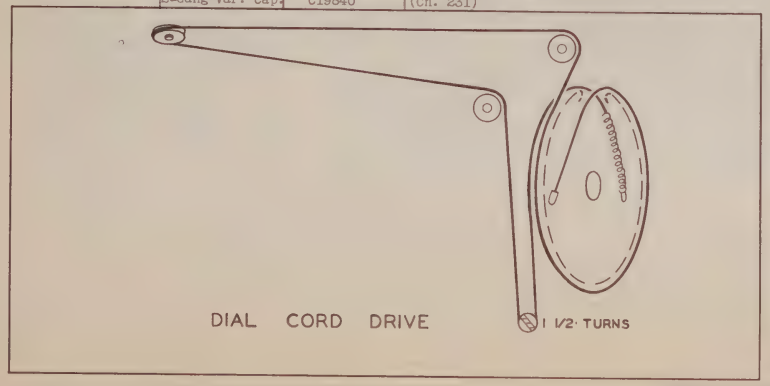
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ARVIN PART No.	MEISSNER PART No.	
34	Loop Ant.	0Ω	1.5Ω	AC19207-1		
35	Osc. Coil	.7Ω	5.5Ω	AC19354-1	14-1040	
36	Input IF	17Ω	17Ω	AC19355-1	16-6666	
37	Output IF	17.5Ω	17Ω	AC19356-1	16-6667	

DIAL LIGHT

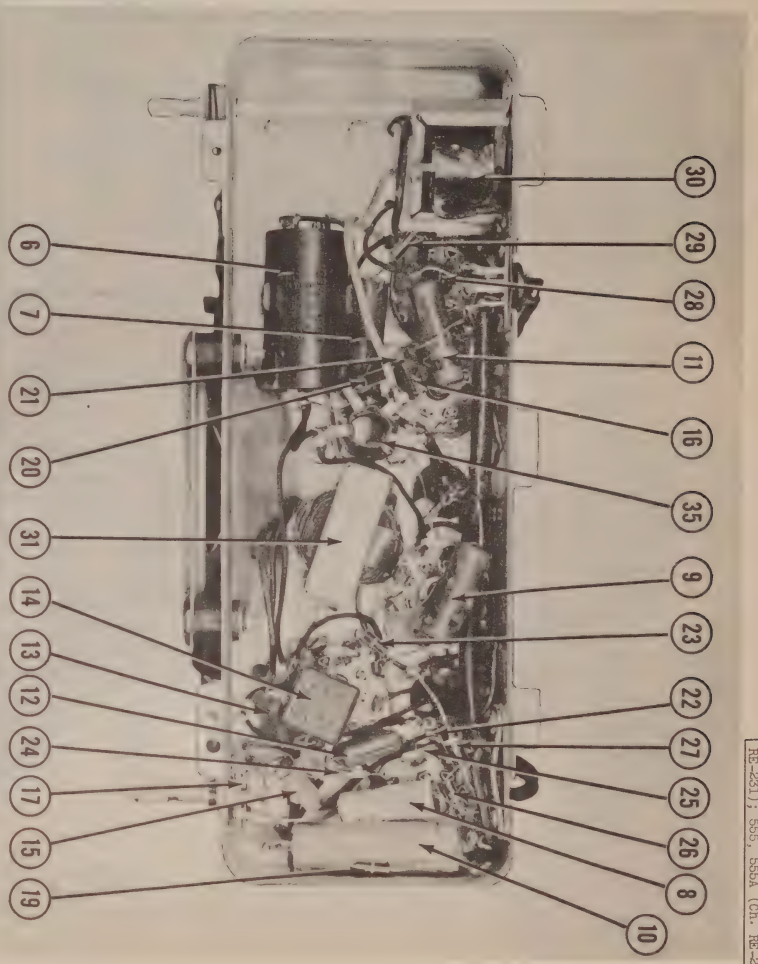
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ARVIN PART No.		
38	Bayonet	6-8	0.15	Brown	A19351		Type 47

MISCELLANEOUS

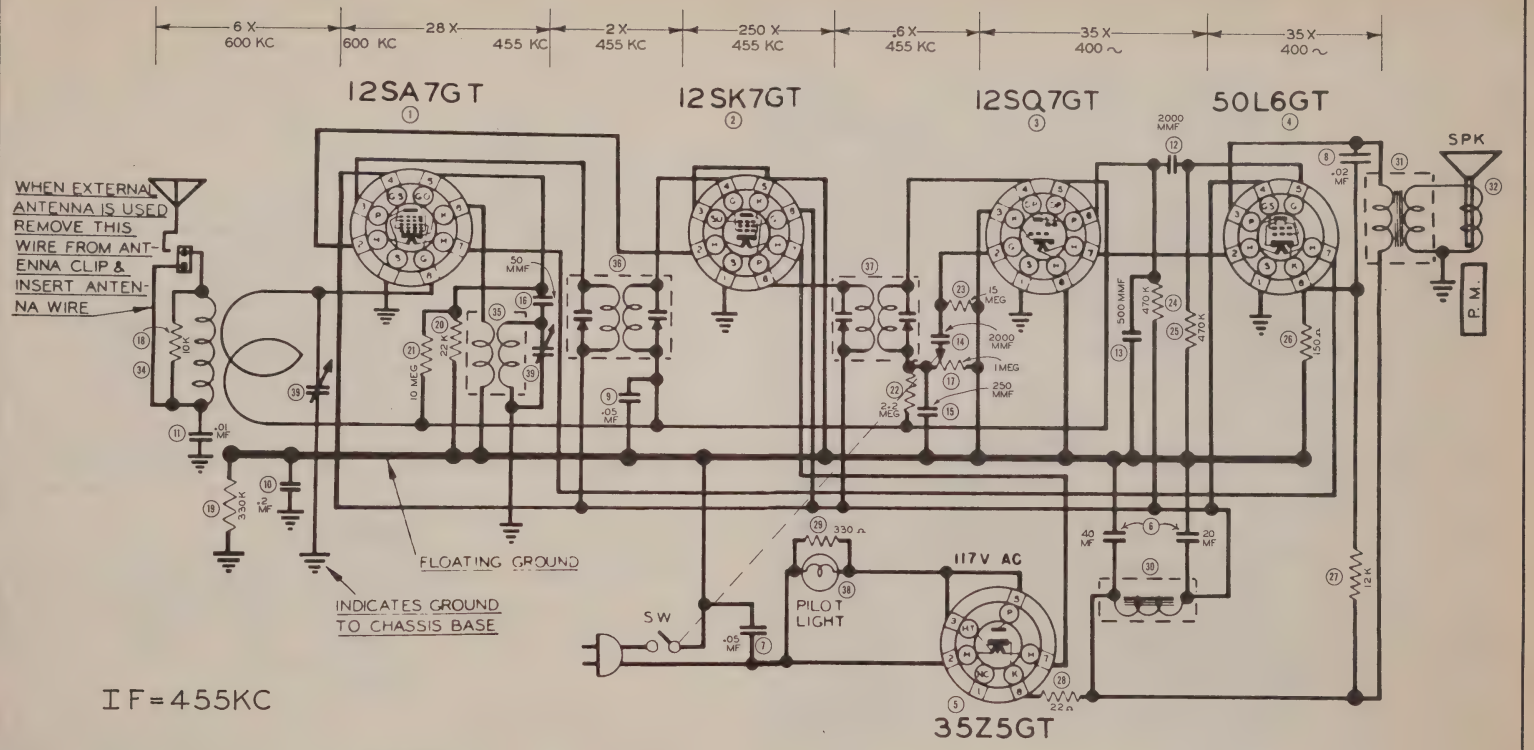
ITEM No.	PART NAME	ARVIN PART No.	NOTES
39	2-Gang Var. Cap. 2-Gang Var. Cap.	E19359 C19840	(18-394 MMF, 34-203 MMF)(Ch.202) (Ch. 231)



CHASSIS—BOTTOM VIEW



ARVIN MODELS 552AN, 552N (Ch. RE-231); 555, 555A (Ch. RE-202)



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	88 V.AC	107 V.DC	107 V.DC	-2 V.DC	0V.	77 V.AC	±5 V.DC
2	12SK7GT	0V.	77 V.AC	0V.	-.5 V.DC	0V.	107 V.DC	65 V.AC	107 V.DC
3	12SQ7GT	0V.	±55 V.DC	0V.	±45 V.DC	±55 V.DC	62 V.DC	13 V.AC	0V.
4	50L6GT	0V.	65 V.AC	114 V.DC	107 V.DC	0V.	0V.	13 V.AC	6.5 V.DC
5	35Z5GT	0V.	117 V.AC	113 V.AC	117 V.DC	113 V.AC	113 V.AC	88 V.AC	119 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	315 K Ω	80 Ω	12 K Ω	12 K Ω	18 K Ω	.6 Ω	70 Ω	2.2 MEG.
2	12SK7GT	315 K Ω	70 Ω	0 Ω	2.2 MEG.	0 Ω	12 K Ω	58 Ω	12 K Ω
3	12SQ7GT	315 K Ω	15 MEG.	0 Ω	840 K Ω	2.2 MEG.	482 K Ω	12 Ω	0 Ω
4	50L6GT	315 K Ω	58 Ω	12 K Ω	12 K Ω	470 K Ω	0 Ω	12 Ω	135 Ω
5	35Z5GT	INF.	105 Ω	102 Ω	12 K Ω	102 Ω	102 Ω	80 Ω	12 K Ω

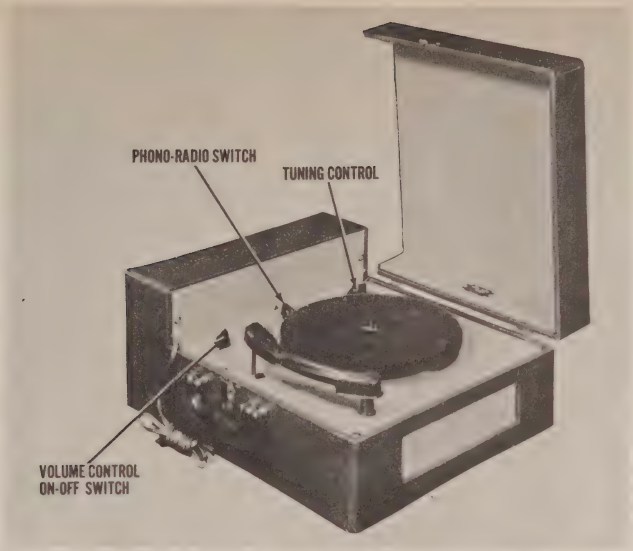
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-9

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



AUDAR MODEL PR-6

TRADE NAME	Audar, Model PR-6
MANUFACTURER	Audar, Inc., Argos, Indiana
TYPE SET	AC Operated - Radio - Phonograph Combination Superheterodyne Receiver
TUBES (FOUR)	Types, 14Q7 or 12SA7 Converter, 14B6 or 12SQ7 Det.-AVC-AF, 50A5 or 50L6GT Power Output, 35Y4 or 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1680KC RATING .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to ext. ant. lead. Low side to B-.	455KC	Slugs complete out.	Across voice coil	A1,A2.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
Direct	High side to insulation covering ant. wire. (Not wire itself). Low side to B-.	1680KC	"	"	A3	Adjust for maximum output.
Direct	"	1120KC	Tune for maximum output.	"	A4	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove four wood screws and washers from motor board. Tilt motor board up on end.
2. Remove the three set-screw type control knobs.
3. Remove three wood screws and washers holding chassis to motor board. Remove chassis from motor board.
4. Unsolder phono-motor leads from terminal strip on chassis.
5. Unsolder phono-pickup leads from terminal strip on chassis.
6. Remove two wood screws and washers holding speaker compartment panel board to cabinet. Remove panel board from cabinet.
7. Remove four hex nuts holding speaker to cabinet. Remove speaker.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AUDAR PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	Converter	14Q7	14Q7	8AL	
B	Converter	12SA7GT	12SA7GT	8AD	
2A	Det.-AVC-AF	14B6	14B6	8W	
B	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
3A	Power Output	50A5	50A5	6AA	
B	Power Output	50L6GT	50L6GT	7AC	
4A	Rectifier	35Y4	35Y4	5AL	
B	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AUDAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	50	150	CE-LHH-4	UT-501	PRSA150-40-150	EZ42215	2N520	DSB-403020-	Filter - Red
B	20	150			40				" - White
C	20	150		TA-220	PRS150-20		TC45		" - "
6	10	25	CE-E-1	TA-10	PRS25-10	BR102A	TC22	M-10-25	Output Cath. Bypass
7	.05	400	CP-15-9	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.02	400	CP-12-9	TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
9	.01	400	CP-11-9	TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
10	.01	400	CP-11-9	TC-11	484-01	DT4S1	TP421	S-4-01	" "
11	.001	400	CP-21-9	TC-21	484-001	DT6D1	TP404	S-6-001	Tone Compensation
12	.1	400	CP-01-9	TC-1	484-.1	DT4P1	TP428	S-4-1	Line Isolation
13	.05	400	CP-15-9	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
14	250	500	CM-325-11	1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Audio Plate Bypass
15	250	500	CM-325-11	1FM-325	1468-00025	5W5T25	MC240	M0.5-325	IF Bypass Vol. Cont.
16	300	500	CM-33-11	MS-33	1468-0003	5W5T3	MC241	M0.5-33	Osc. Anode Bypass
17	50	500	CM-45-11	1FM-45	1468-00005	5W5S5	MC225	M0.5-45	Ant. Coupling

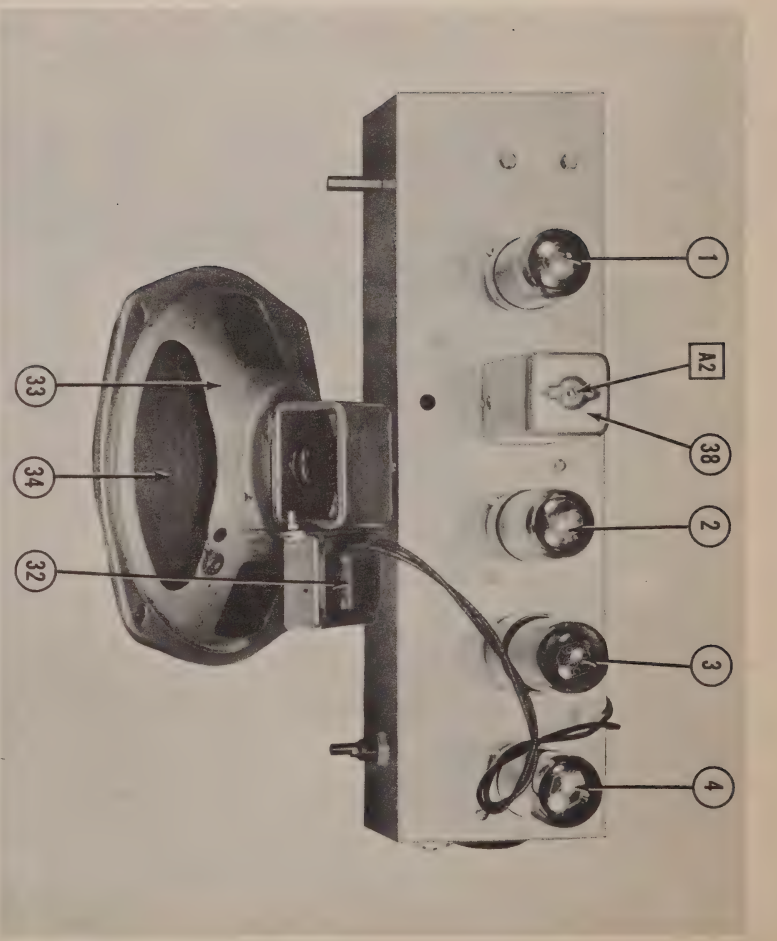
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUDAR PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	1 Meg.	1	RVC-16-S	MR55	D13-137	M-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUDAR PART No.	IRC PART No.	IDENTIFICATION CODES
19	22KΩ	½	RC-223-C	BTS-22K	Red-Red-Or. Oscillator Grid
20	4700Ω	½	RC-472-C	BTS-4700	Yl.-Vi.-Red Voltage Dropping
21	2 Meg.	½	RC-205-C	BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
22	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Tone Compensation
23	2 Meg.	½	RC-205-C	BTS-2.2 Meg.	Red-Blk.-Grn. Series Phono.
24	5 Meg.	½		BTS-4.7 Meg.	Grn.-Blk.-Grn. AF Grid
25	220KΩ	½	RC-224-C	BTS-220K	Red-Red-Yl. AF Plate Load
26	470KΩ	½	RC-474-C	BTS-470K	Yl.-Vi.-Yl. Output Grid
27	150Ω	1	RC-151-D	BW-1-150	Br.-Grn.-Br. Output Cathode
28	1000Ω	½	RC-102-C	BTS-1000	Br.-Blk.-Red Filter
29	220Ω	1	RC-221-D	BW-1-220	Red-Red-Br. Filter
30	22Ω	½		BW-½-22	Red-Red-Blk. Rectifier Ballast
31	50Ω	5	RW-50-H	AB-50	Line Dropping

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

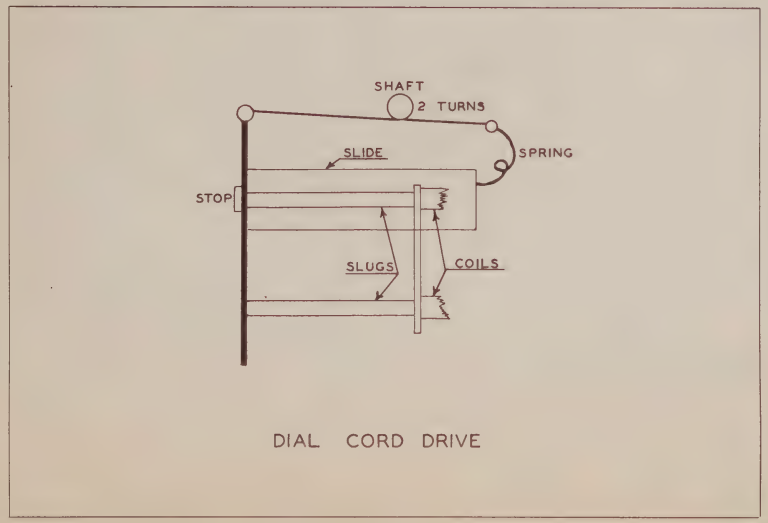
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AUDAR PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
32A	1400Ω	3.4Ω	180Ω	.85Ω	TOS-20-4 TOS-20-3	A-3885	T22S45		Alternate transformer
B									

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AUDAR PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-108		
33	FM	3.4Ω		Mod. P6-X		
	CONE DIA.	VC DIA.				
34	6"	½"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT		

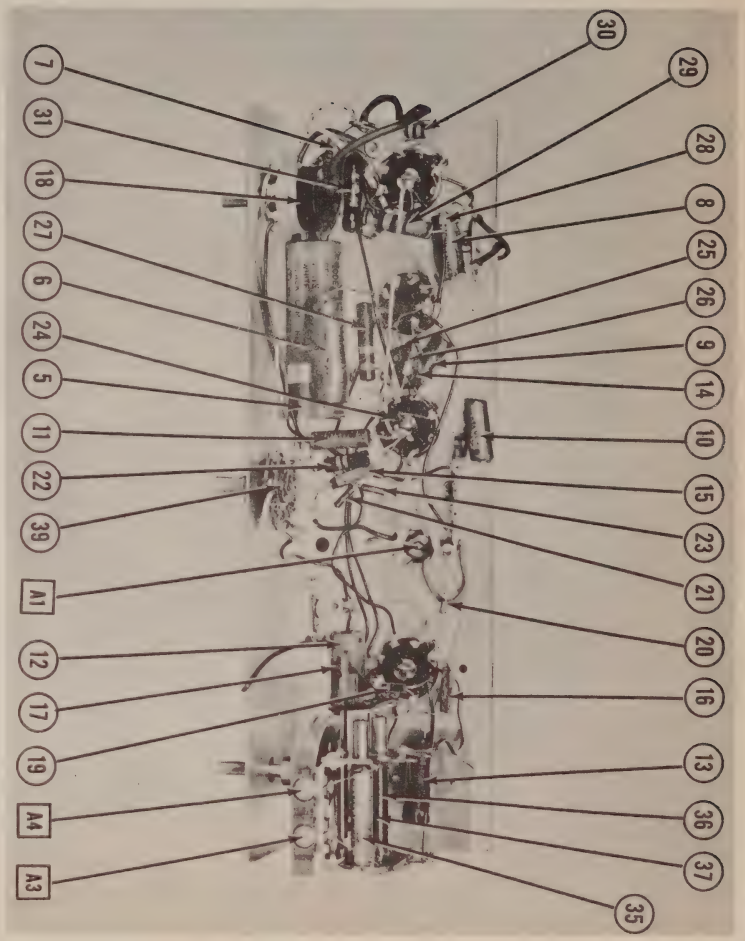
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AUDAR PART No.	MEISSNER PART No.	
35	Ant. Coil		5.5Ω			
36	Osc. Coil		6.7Ω			
37	Osc. Coup. Coil		9Ω			
38	IF Trans.	16Ω	16Ω	T1F-1	16-5742	

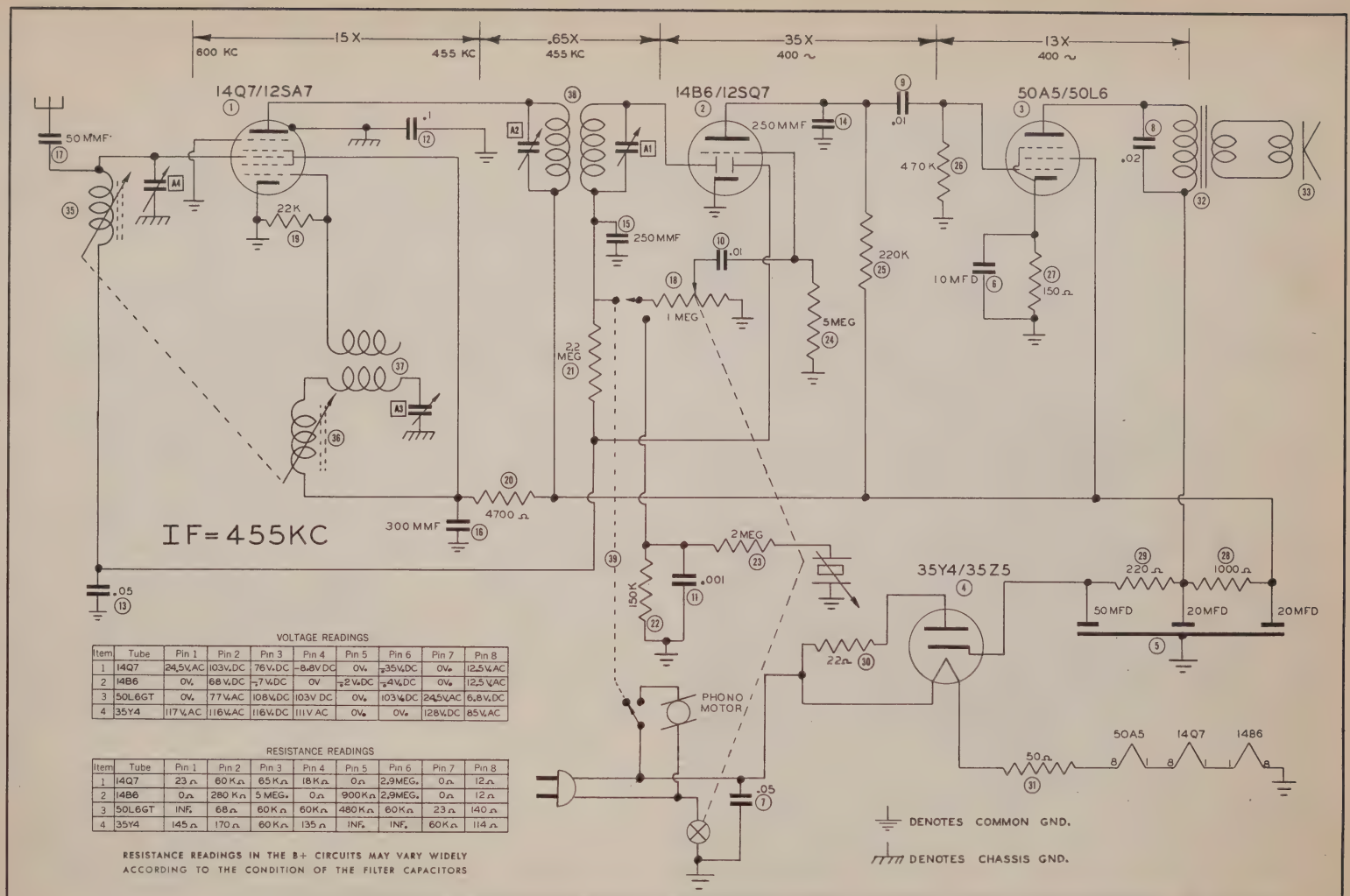


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



AUDAR MODEL PR-6



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24.5V.AC	103V.DC	76V.DC	−8.8V DC	0V.	∓35V.DC	0V.	12.5V.AC
2	14B6	0V.	68 V.DC	∓7 V.DC	0V	∓2 V.DC	∓4V.DC	0V.	12.5 V.AC
3	50L6GT	0V.	77 V.AC	108V.DC	103V DC	0V.	103V.DC	245V.AC	6.8V.DC
4	35Y4	117 V.AC	116V.AC	116V.DC	111V AC	0V.	0V.	128V.DC	85V.AC

RESISTANCE READINGS

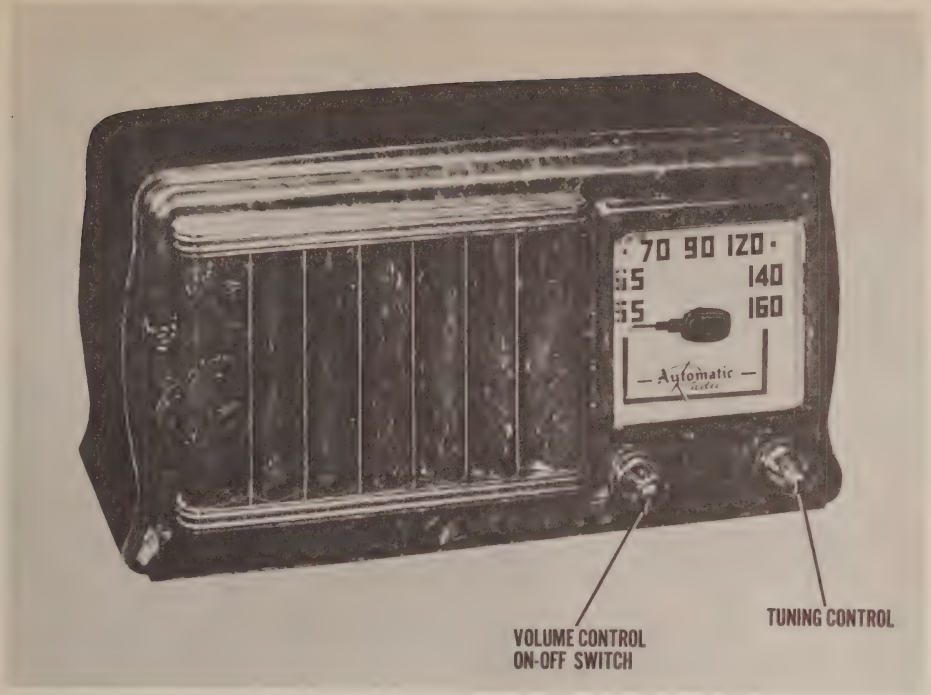
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	23 Ω	60 KΩ	65 KΩ	18 KΩ	0Ω	2.9MEG.	0Ω	12Ω
2	14B6	0Ω	280 KΩ	5 MEG.	0Ω	900 KΩ	2.9MEG.	0Ω	12Ω
3	50L6GT	INF.	68Ω	60 KΩ	60 KΩ	480 KΩ	60 KΩ	23Ω	140Ω
4	35Y4	145Ω	170Ω	60 KΩ	135Ω	INF.	INF.	60 KΩ	114Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 473-10

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



AUTOMATIC
MODELS 601, 602

AUTOMATIC
MODELS 601, 602

AUTOMATIC MODEL 601

TRADE NAME	Automatic, Models 601 (Series A), 602
MANUFACTURER	Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston, Mass.
TYPE SET	AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 14A7/12B7 IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC-DC
TUNING RANGE—BROADCAST	538-1685 KC RATING .260 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To adjust pointer turn variable closed and set pointer horizontally. Use isolation transformer if available, if not, connect capacitor in series with low side of signal generator and chassis. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. When aligning keep loop in same relative position to chassis as when in cabinet. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output. If isolation is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1685KC	"	"	A4.	Fashion loop of several turns of wire and radiate signal into receiver loop. Adjust for maximum output.
	"	1400KC	"	"	A5	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	14A7/12B7	14A7/12B7	8V	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AUTOMATIC PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6	50	150		UT-501	PRS150-50	BR5015	TC49	M-50-150	Filter
7	20	150		UT-201	PRS150-20	BR2015	TC45	M-20-150	"
8	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
9	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Output Plate Bypass
10	.025	200		TC-12	484-025	DT4S2	TP423	S-4-02	Audio Coupling
11	.002	600		TC-22	684-002	DT6D2	TP405	S-6-002	" "
12	.1	200		TC-1	484-.1	DT4P1	TP428	S-4-1	AVC Filter
13	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Tone Compensation
14	50	500		1FM-45	1468-00005	5w5Q5	MC225	MO.5-45	IF Bypass Vol. Cont.
15	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	250KΩ	1	RV46	MR44‡	D13-130‡	M-64-Z‡	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions.
C	Switch		" "	M26	41	SW-A	" " " " "

‡Install a 22KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft side terminals down.)

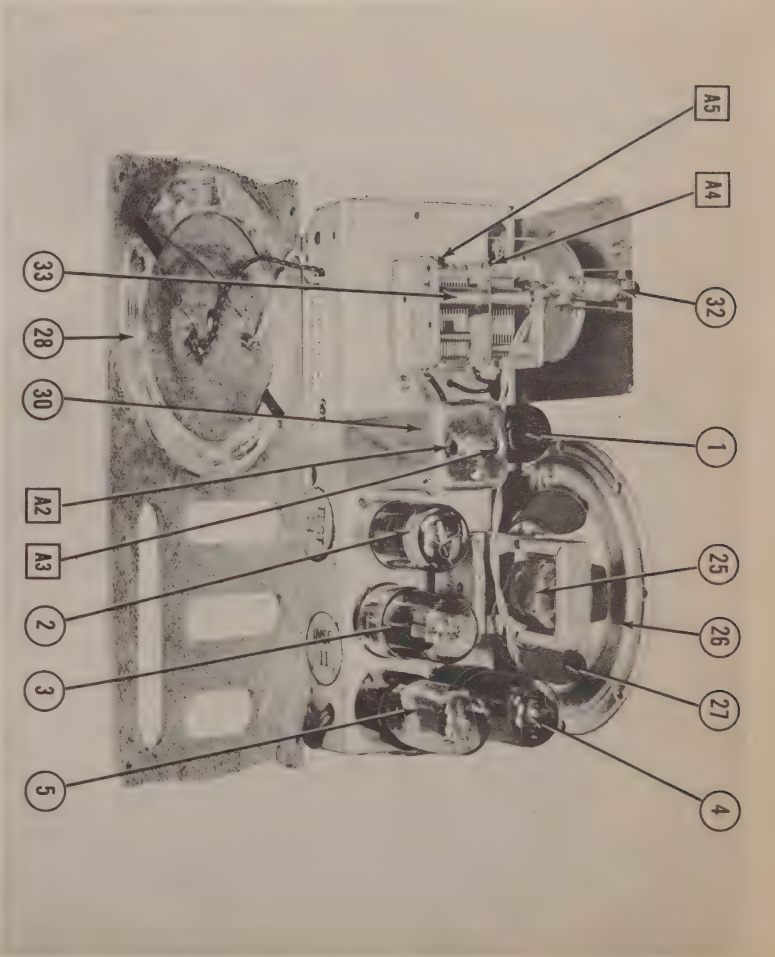
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	IRC PART No.	IDENTIFICATION CODES
17	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AVC Network
18	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
19	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
20	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
21	250KΩ	½		BTS-270K	Red-Grn.-Yl. 1st AF Plate Load
22	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
23	150Ω	1		BW-1-150	Br.-Grn.-Br. Output Cathode
24	1000Ω	1		BTA-1000	Br.-Blk.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AUTOMATIC PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
25	1950Ω	3.2Ω	120Ω	.54Ω	Part of PM600	A-3876*	T22S45*		* Bend mounting tabs down, file out slots and mount on original brackets.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AUTOMATIC PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-107		
26	FM	3.2Ω	PM600	Mod. P5-V		
	CONE DIA.	VC DIA.				
27	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

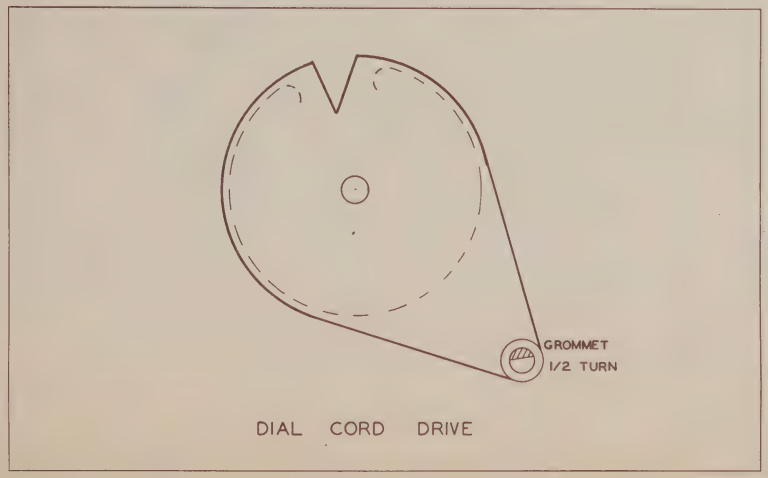
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	AUTOMATIC PART No.	MEISSNER PART No.	
28	Loop Ant.		2.5Ω			
29	Osc. Coil		5.5Ω		14-1040	
30	Input IF	17Ω	16.5Ω		16-6658	
31	Output IF	41.5Ω	41Ω			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AUTOMATIC PART No.		
32	Bayonet	6-8	0.15	Brown			Type 47

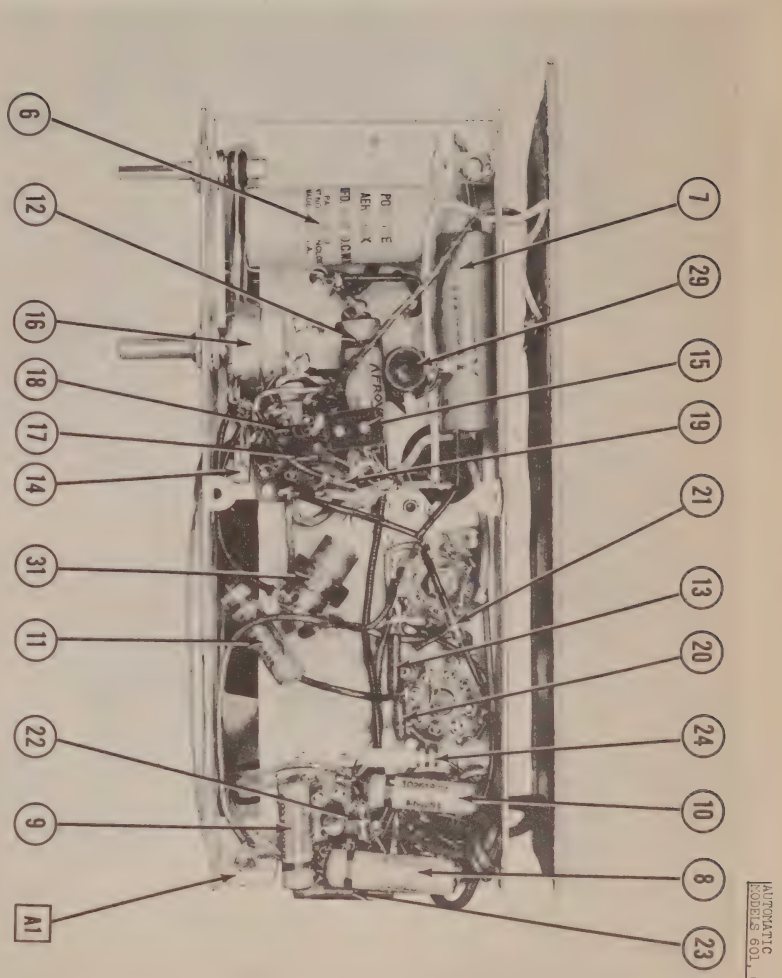
MISCELLANEOUS

ITEM No.	PART NAME	AUTOMATIC PART No.	NOTES
33	2 Gang Var. Cap.	CV-147AZ	(21-388 MMF, 28-199 MMF)



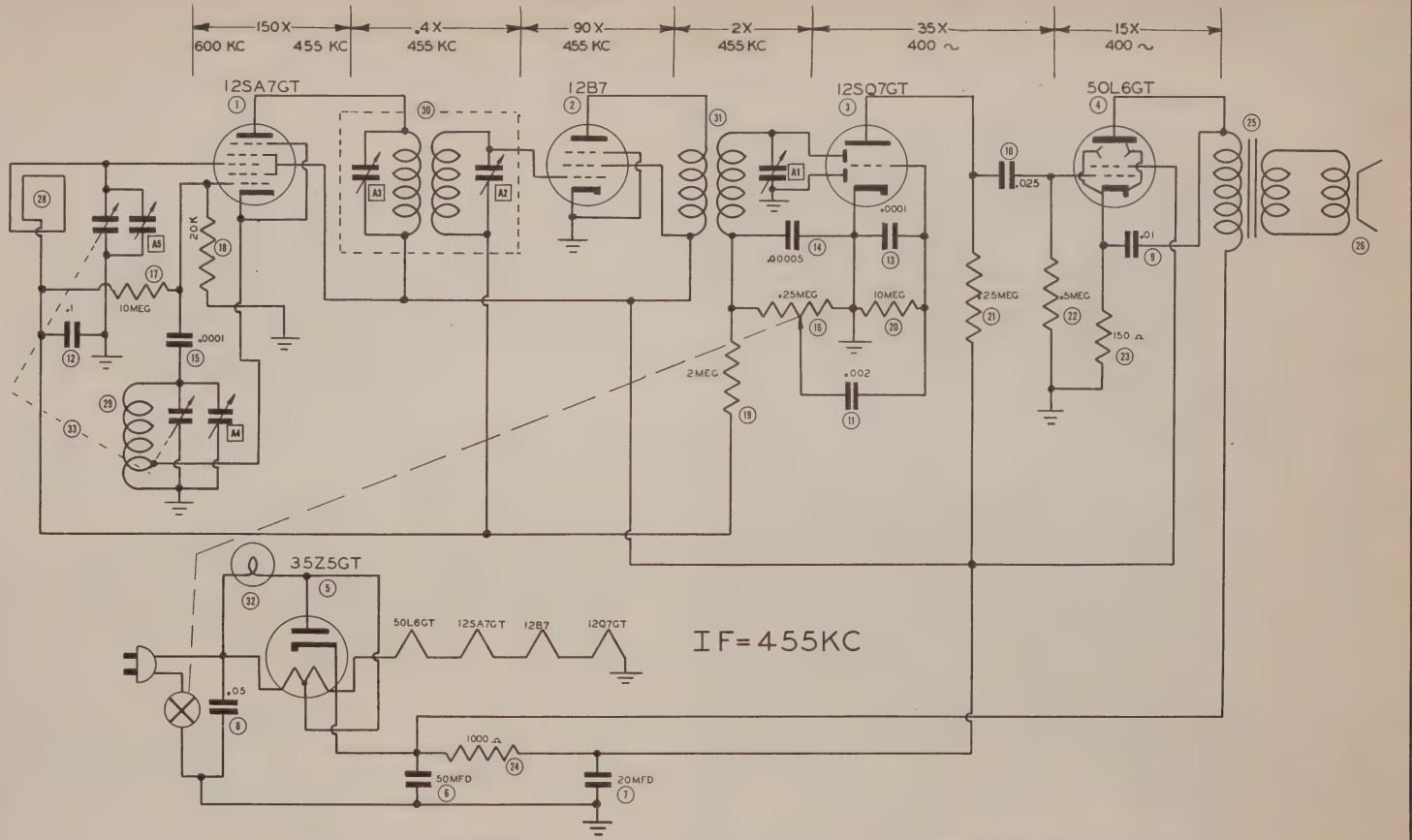
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



AUTOMATIC
MODELS 601, 602

AUTOMATIC
MODELS 601, 602



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	35V.AC	103V.DC	103V.DC	-6.9VDC	0V.	24V.AC	-6V.DC
2	14A7	12V.AC	103V.DC	103V.DC	0V.	0V.	-6V.DC	0V.	24V.AC
3	12SQ7GT	0V.	-.5V.DC	0V.	-.3V.DC	0V.	65V DC	12V.AC	0V.
4	50L6GT	0V.	35V.AC	116V DC	103V DC	0V.	0V.	86V.AC	6.6V.DC
5	35ZGT	0V.	117V.AC	113V.AC	0V.	113V.AC	117V.AC	86V.AC	127V.DC

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RESISTANCE READINGS

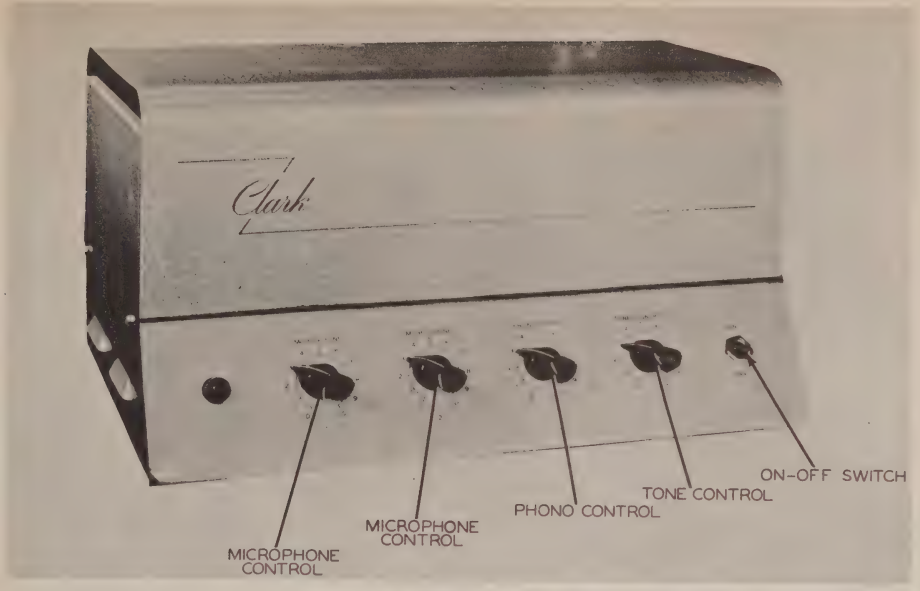
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0 Ω	34 Ω	50K Ω	50 K Ω	16K Ω	.5 Ω	23 Ω	1.9MEG
2	14A7	12 Ω	50K Ω	50K Ω	0 Ω	0 Ω	1.9MEG	0 Ω	23 Ω
3	12SQ7GT	0 Ω	9 MEG	0 Ω	210K Ω	0 Ω	300K Ω	12 Ω	0 Ω
4	50L6GT	0 Ω	34 Ω	50K Ω	50K Ω	470K Ω	0 Ω	78 Ω	135 Ω
5	35ZGT	0 Ω	102 Ω	100 Ω	0 Ω	100 Ω	102 Ω	78 Ω	50K Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-11

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



CLARK MODEL PA-20

TRADE NAME	Clark, Model PA-20
MANUFACTURER	Clark Radio Equipment Corp., 4313 Lincoln Ave., Chicago (18), Ill.
TYPE SET	AC Operated 3 Channel Amplifier
TUBES (SIX)	Types, 7F7 Mike Pre. Amp., 7F7 Audio & Phono Amp., 7F7 Driver & Phase Inverter, (2) 6L6GA Power Output, 5U4G Rectifier.
POWER SUPPLY	117 Volts AC RATING - 1.27 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7F7	3.2 V.AC	1 V.DC	70 V.DC	0V.	0V.	70 V.DC	1 V.DC	3.2 V.AC
2	7F7	3.2 V.AC	1.4 V.DC	110 V.DC	0V.	0V.	110 V.DC	1.4 V.DC	3.2 V.AC
3	7F7	3.2 V.AC	3.8 V.DC	285 V.DC	0V.	0V.	240 V.DC	3.8 V.DC	3.2 V.AC
4	6L6G	0V.	3.2 V.AC	450 V.DC	385 V.DC	0V.	0V.	3.2 V.AC	28 V.DC
5	6L6G	0V.	3.2 V.AC	450 V.DC	385 V.DC	0V.	0V.	3.2 V.AC	28 V.DC
6	5U4G	0V.	455 V.DC	0V.	400 V.AC	0V.	400 V.AC	0V.	455 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7F7	∞ Ω	780 Ω	220KΩ	1.1 MEG.	1.1 MEG.	225KΩ	780Ω	∞ Ω
2	7F7	∞ Ω	800 Ω	125KΩ	480KΩ	460 KΩ	125 KΩ	800 Ω	∞ Ω
3	7F7	∞ Ω	2.3KΩ	115 KΩ	220 KΩ	1.1 MEG.	125 KΩ	2.3 KΩ	∞ Ω
4	6L6G	INF.	∞ Ω	20 KΩ	18 KΩ	220KΩ	INF.	∞ Ω	180 Ω
5	6L6G	INF.	∞ Ω	20KΩ	18 KΩ	225KΩ	INF.	∞ Ω	180 Ω
6	5U4G	INF.	20 KΩ	INF.	158 Ω	INF.	167 Ω	INF.	20 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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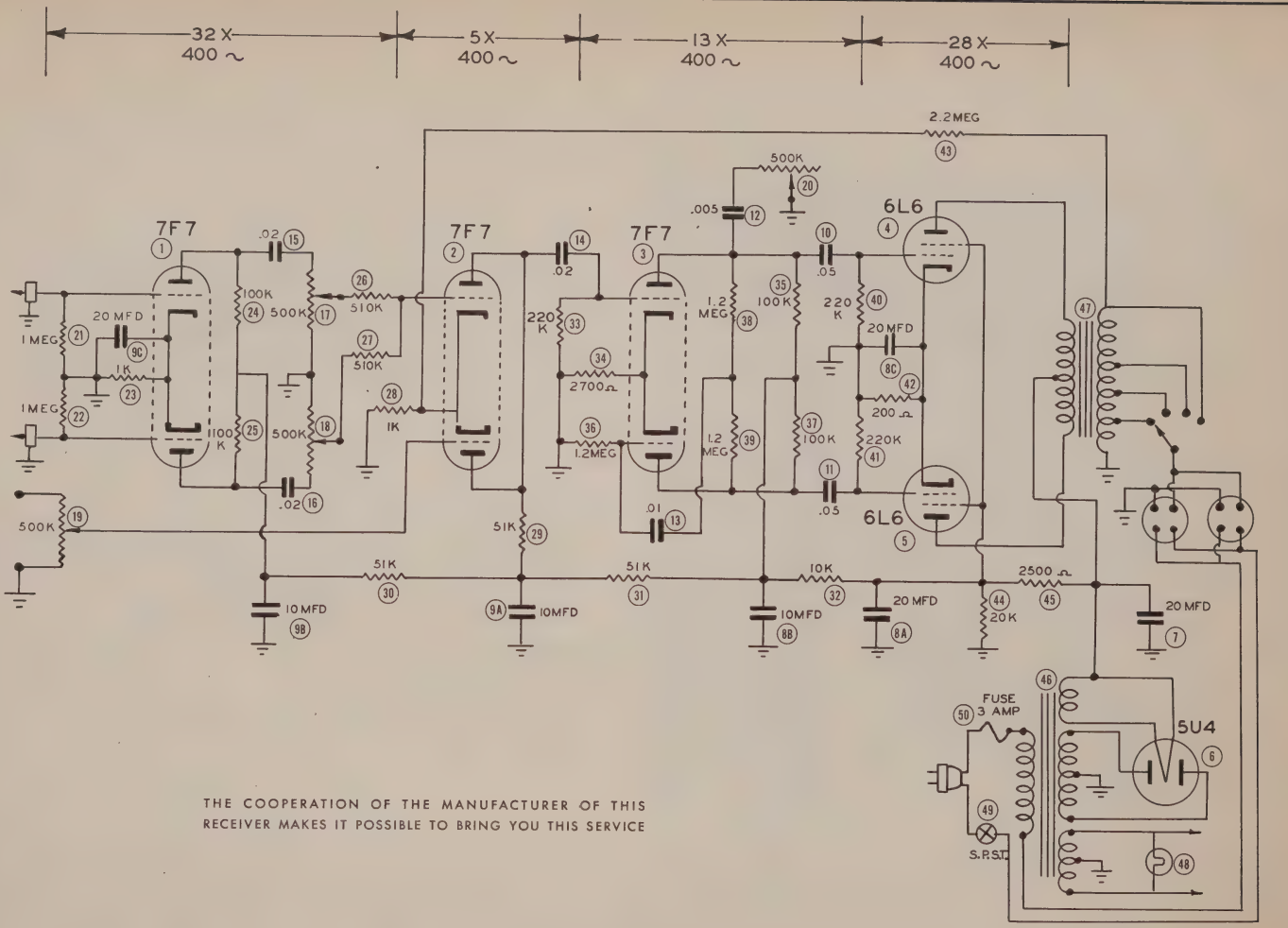

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473-12

CONTINENTAL ELECTRONICS
MODEL SKYWEIGHT 82

CONTINENTAL ELECTRONICS
MODEL SKYWEIGHT 82

CONTINENTAL ELECTRONICS MODEL SKYWEIGHT 82

TRADE NAME	Continental Electronics, Model Skyweight 82
MANUFACTURER	Continental Electronics, Ltd., 81 Pine St., New York, N.Y.
TYPE SET	AC Operated Portable Radio-Phonograph Combination - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	550-1620KC RATING .260 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and chassis. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of large section of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1400KC	1400KC	"	A5	Fashion loop of few turns of wire and radiate signal into loop of set. Adjust for maximum output.
	"	1400KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: CONT. ELECT. PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7CC	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CONT. ELECTRONIC PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150		TA-440	PRSA150-40-	BRD4415	2N511	DSB-2x40-150	Filter
B	40	150			40				"
7	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.01	200		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
9	.01	200		TC-11	484-01	DT4S1	TP421	S-4-01	" "
10	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
11	250	500		1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Output Plate Bypass *
12	250	500		1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Audio Plate Bypass
13	250	500		1FM-325	1468-00025	5W5T25	MC240	M0.5-325	IF Bypass Diode
14	50	500		1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Osc. Grid Capacitor
39	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	IF Cath. Bypass

*Not used in all models.

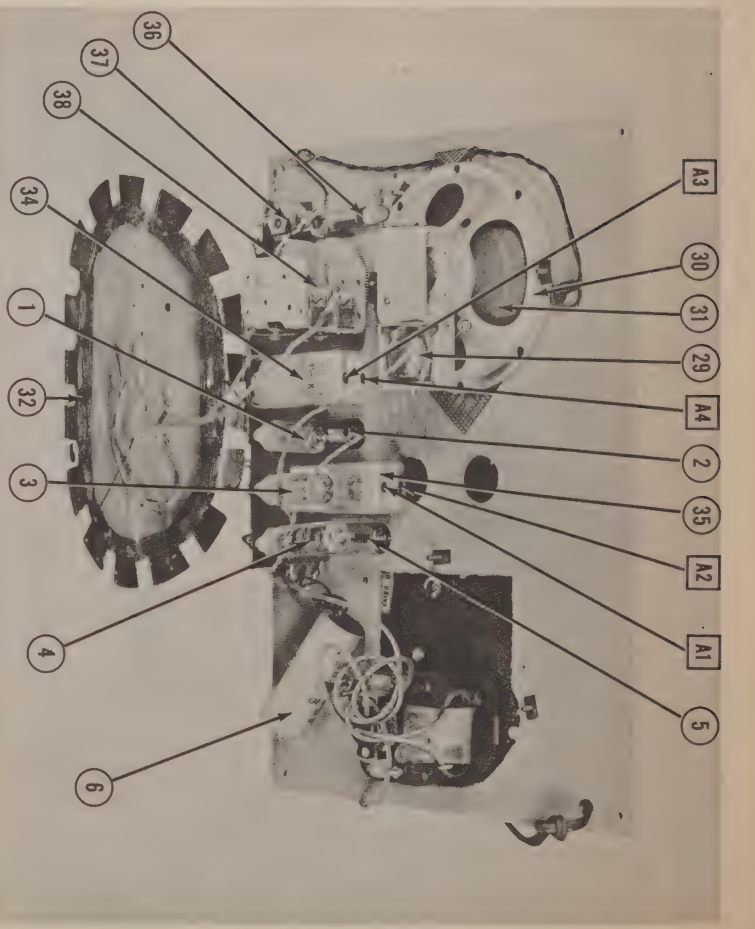
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CONT. ELECT. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
15A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 15A per instructions
C	Switch			M28	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CONT. ELECT. PART No.	IRC PART No.	IDENTIFICATION CODES
16	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
17	2200Ω	½		BTS-2200	Red-Red-Red IF Cathode
18	1000Ω	½		BTS-1000	Br.-Blk.-Red IF Cathode
19	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AVC Network
20	3.3 Meg.	½		BTS-3.3 Meg	Or.-Or.-Grn. AVC Network
21	30KΩ	½		BTS-33K	Or.-Blk.-Or. Diode RF Filter
22	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
23	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
24	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
25	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
26	500Ω	1		BTA-470	Grn.-Blk.-Br. Filter
27	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Series Phono.
28	40KΩ	½		BTS-39K	Yl.-Blk.-Or. Phono Shunt

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CONT. ELECTRONICS PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
29	2100Ω	3.4Ω	120Ω	.6Ω		A-3876†	T22S45†		†Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CONT. ELECTRONICS PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-105		
30	PM	3.4Ω		Mod. P5-X		
	CONE DIA.	VC DIA.				
31	4-5/8"	1/2"	NOT READILY REPLACEABLE - USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	CONT. ELECT. PART No.	MEISSNER PART No.	
32	Loop Ant.		2.9Ω			
33	Osc. Coil		6.5Ω		14-1040	
34	Input IF	30.5Ω	20Ω		16-6666	
35	Output IF	15Ω	14Ω		16-6667	

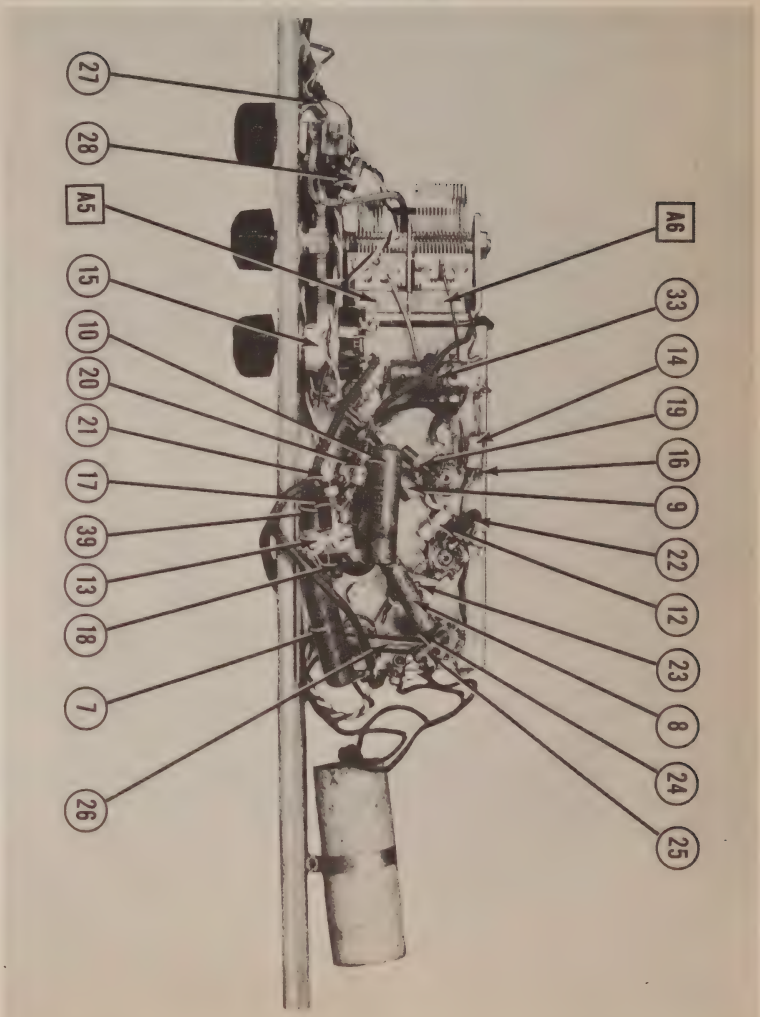
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					CONT. ELECT. PART No.		
36	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

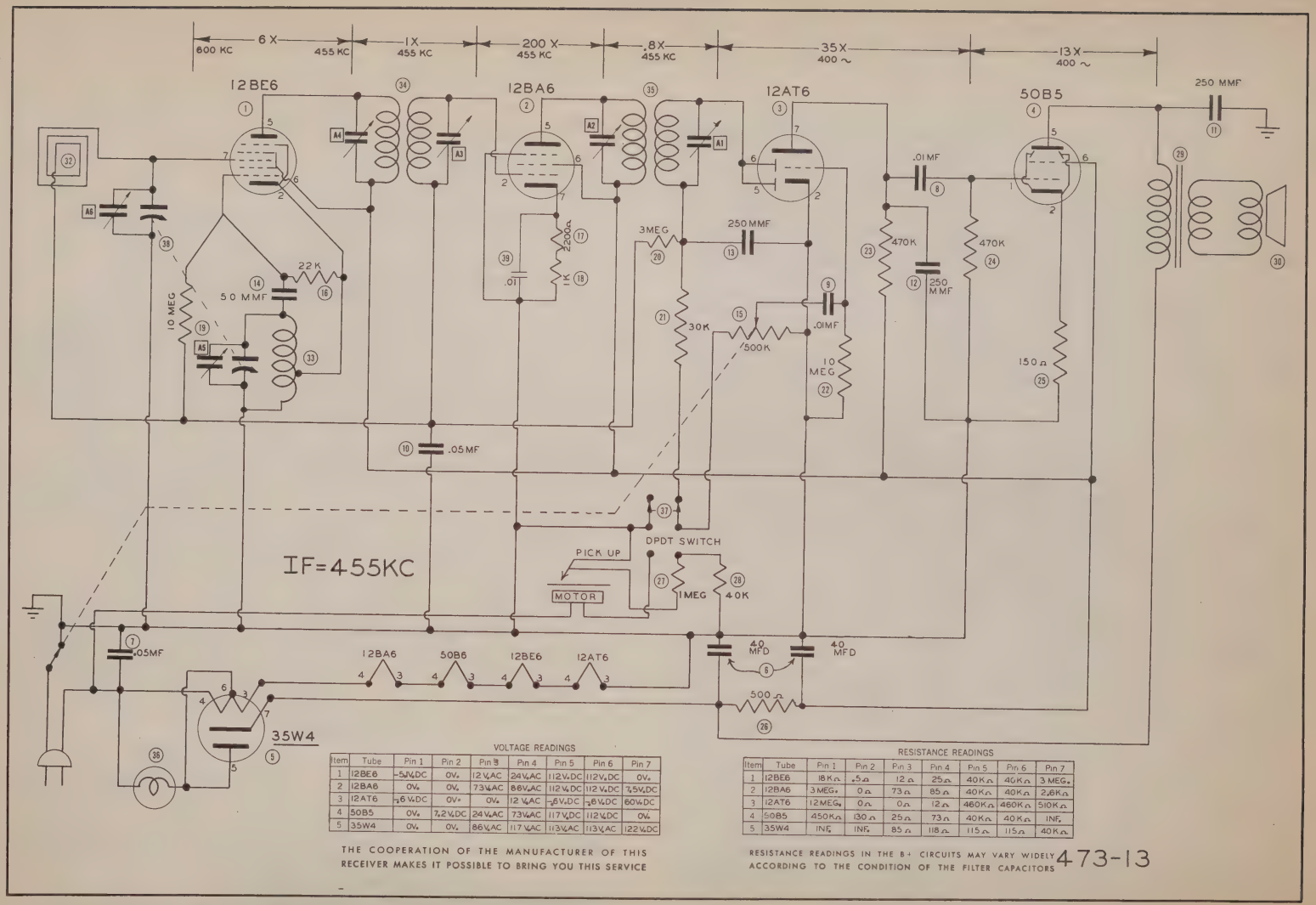
ITEM No.	PART NAME	CONT. ELECT. PART No.	NOTES
37	Phono-Radio SW		
38	2 Gang Var. Cap		(26-446 MMF, 33-188 MMF)

CHASSIS—BOTTOM VIEW



CONTINENTAL ELECTRONICS
MODEL SKYWEIGHT 82

CONTINENTAL ELECTRONICS
MODEL SKYWEIGHT 82



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-5V DC	0V.	12 V AC	24 V AC	112 V DC	112 V DC	0V.
2	12BA6	0V.	0V.	73 V AC	86 V AC	112 V DC	112 V DC	7.5 V DC
3	12AT6	-6 V DC	0V.	0V.	12 V AC	-6 V DC	-6 V DC	60 V DC
4	50B5	0V.	7.2 V DC	24 V AC	73 V AC	117 V DC	112 V DC	0V.
5	35W4	0V.	0V.	86 V AC	117 V AC	113 V AC	113 V AC	122 V DC

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RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	18 KΩ	.5Ω	12Ω	25Ω	40 KΩ	40 KΩ	3 MEG.
2	12BA6	3 MEG.	0Ω	73Ω	85Ω	40 KΩ	40 KΩ	2.6 KΩ
3	12AT6	12 MEG.	0Ω	0Ω	12Ω	460 KΩ	460 KΩ	510 KΩ
4	50B5	450 KΩ	130Ω	25Ω	73Ω	40 KΩ	40 KΩ	INF.
5	35W4	INF.	INF.	85Ω	118Ω	115Ω	115Ω	40 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-13

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

ECA
MODEL 104

ECA
MODEL 104

ECA MODEL 104

TRADE NAME	ECA, Model 104
MANUFACTURER	Electronic Corporation of America, 170 53rd St., Brooklyn (32), N.Y.
TYPE SET	AC Operated Combination Automatic Phonograph and Superheterodyne Receiver with Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-125 Volts AC
TUNING RANGE—BROADCAST	540-1725KC RATING .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer 1-9/32 inches from left end metal backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to stator of rear section of variable. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. lead. Low side to B-.	1500KC	5¼" from left end metal back plate.	"	A5	Adjust for maximum output.
200MMFD	"	"	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ECA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	IF Amplifier	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ECA PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150	S-CE122M	TA-530	PRSA150-40-40	BRD3515	2N520	DSB-5030-150	Filter - Red
B	30	150							" - Blue
7	.05	400	CP105E	TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
8	.02	400	CP104E	TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
9	.002	600		TC-22	684-002	DT6D2	TP405	S-6-002	Tone Compensation
11	.005	400	CP116E	TC-25	484-005	DT6D5	TP408	S-6-005	Audio Coupling
11	.05	400	CP105E	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
12	.2	200	CP133D	TC-2	484-.2	DT4P2	TP429	S-4-2	Line Isolating
13	.005	400	CP116E	TC-25	484-005	DT6D5	TP408	S-6-005	Ant. Coupling
14	250	500	CM112E	1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Audio Plate Bypass
15	250	500	CM112E	1FM-325	1468-00025	5W5T25	MC240	M0.5-325	IF Bypass Diode
16	100	500	CM103E	1FM-31	1468-0001	5W5T1	MC235	M0.5-31	Osc. Grid Capacitor

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ECA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1	S-RV171-1	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 17A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
18A	1 Meg.	1	S-RV174-1	MR53	D13-137	M-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 18A per instructions

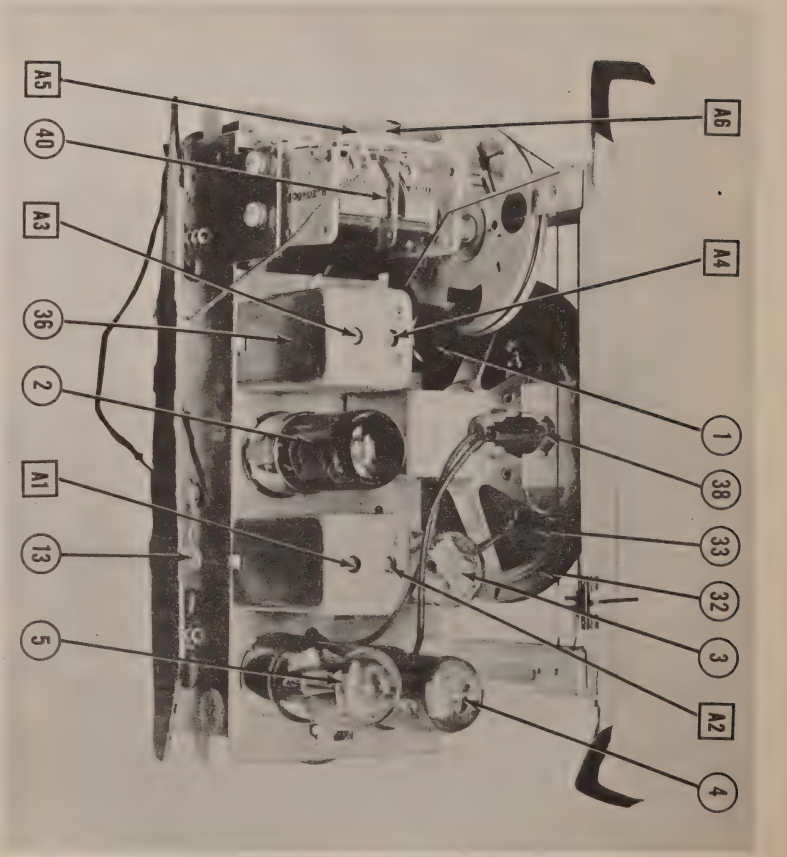
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ECA PART No.	IRC PART No.	IDENTIFICATION CODES
19	27KΩ	½	RS193BA	BTS-27K	Red-Vi.-Or. Osc. Grid
20	200KΩ	½		BTS-220K	Red-Blk.-Yl. Line Isolating
21	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
22	56KΩ	½		BTS-56K	Grn.-Blue-Or. Diode IF Filter
23	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Phono Voltage Divider
24	27KΩ	½	RS193BA	BTS-27K	Red-Vi.-Or. Phono Voltage Divider
25	4.7 Meg.	½	RS237B	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
26	220KΩ	½	RS190B	BTS-220K	Red-Red-Yl. 1st AF Plate Load
27	470KΩ	½	RS189BA	BTS-470K	Yl.-Vi.-Yl. Output Grid
28	150Ω	½	RS135CA	BW-½-150	Br.-Grn.-Br. Output Cathode
29	27KΩ	1	RS193DA	BTA-27K	Red-Vi.-Or. Voltage Divider Bias
30	1500Ω	2	RS195EA	BT-2-1500	Br.-Grn.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ECA PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
31	2450Ω	3.2Ω	177Ω	1.0Ω	S-TA115	A-3876*	T22846*		*Drill one new mounting hole

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA ECA PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-107		
32	FM	3.25Ω	S-QL104	Mod. P5-V		
	CONE DIA.	VC DIA.				
33	4-5/8"	9/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ECA PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
34	Loop Ant.	0Ω	2Ω	C-ZQ499		
35	Osc. Coil		6Ω	S-LR120		
36	Input IF	28Ω	28Ω	S-LR121	16-6658	
37	Output IF	29Ω	29Ω	S-LR122	16-6650	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA ECA PART No.		INSTALLATION NOTES
38	Bayonet	6-8	0.15	Brown			Type 47

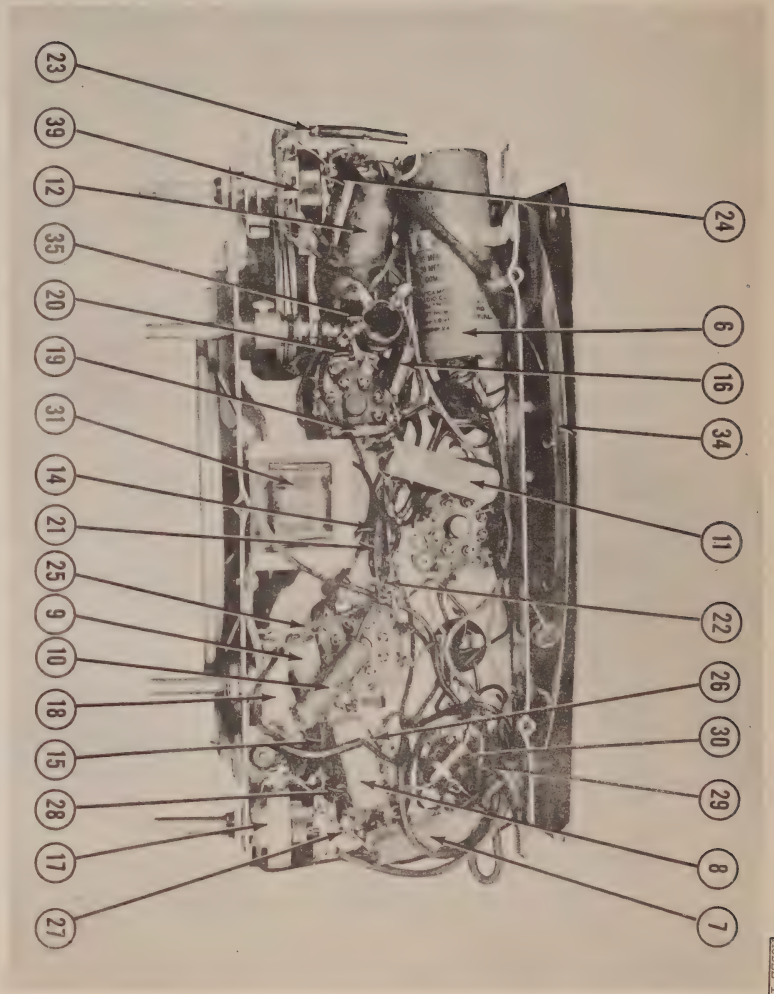
MISCELLANEOUS

ITEM No.	PART NAME	ECA PART No.	NOTES
39	Switch	S-SR136-1	Radio-Phono
40	Tuning Cap.	S-ZQ501	2 Gang Variable Cap.

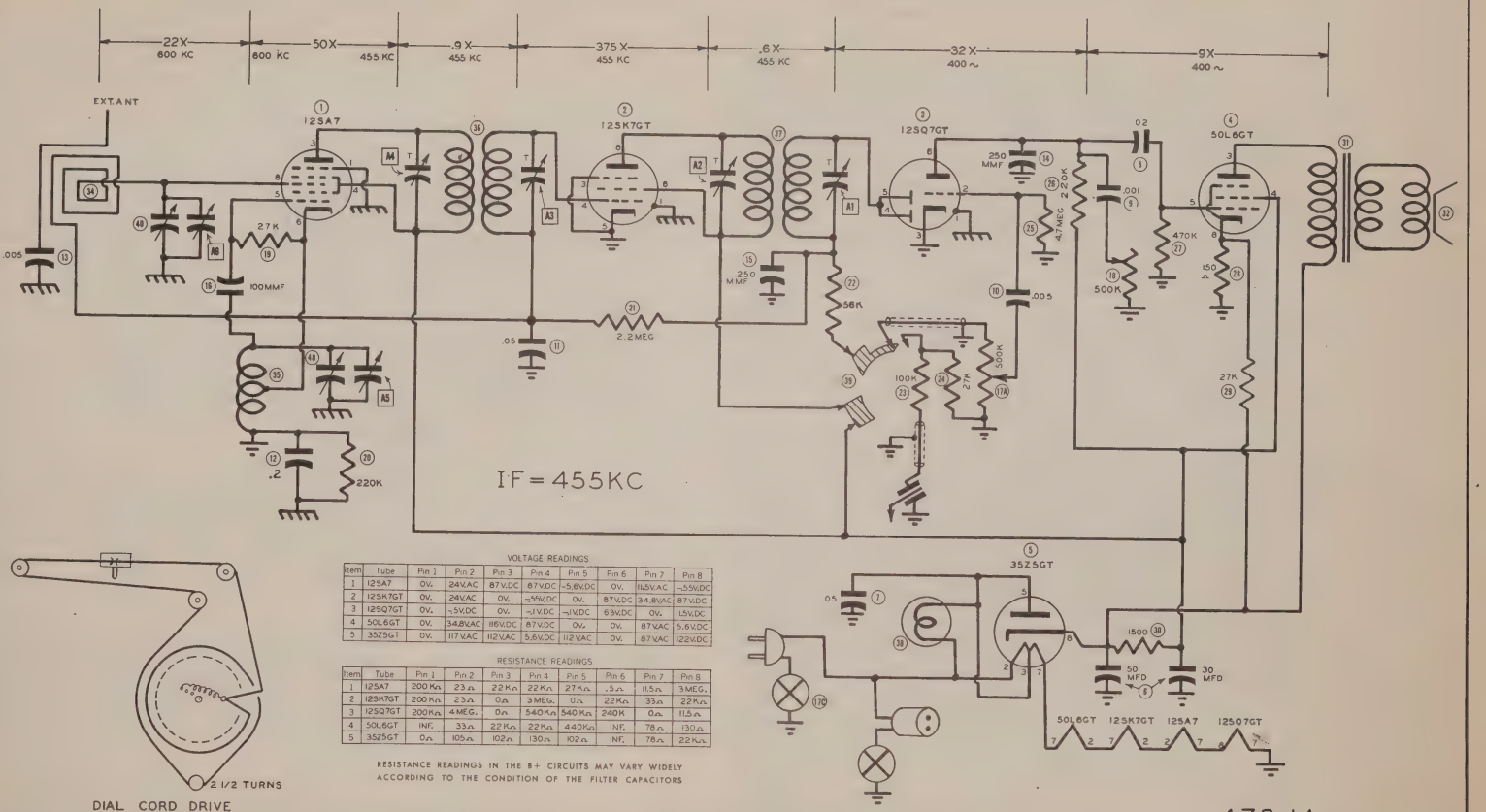
DISASSEMBLY INSTRUCTIONS

1. Remove the four push-on type control knobs and felt washers.
2. Remove wood screw from top cover hinge.
3. Remove six wood screws and washers holding motor board to cabinet.
4. Tilt motor board up on end and disconnect the phono-motor and phono-pickup plugs.
5. Remove motor board from cabinet.
6. Remove three machine screws and washers holding chassis to cabinet.
7. Pull line cord through round hole in back of cabinet.
8. Remove chassis from cabinet.

CHASSIS—BOTTOM VIEW



ECA MODEL 104



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	24V.AC	87V.DC	87V.DC	-5.6V.DC	0V.	115V.AC	-.55V.DC
2	12SK7GT	0V.	24V.AC	0V.	-.55V.DC	0V.	87V.DC	34.8V.AC	87V.DC
3	12SQ7GT	0V.	-.5V.DC	0V.	-1V.DC	-1V.DC	63V.DC	0V.	115V.DC
4	50L6GT	0V.	34.8V.AC	116V.DC	87V.DC	0V.	0V.	87V.AC	5.6V.DC
5	35Z5GT	0V.	117 V.AC	112 V.AC	5.6V.DC	112 V.AC	0V.	87 V.AC	122V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	200 KΩ	23Ω	22 KΩ	22 KΩ	27 KΩ	.5Ω	11.5Ω	3 MEG.
2	12SK7GT	200 KΩ	23Ω	0Ω	3 MEG.	0Ω	22 KΩ	33Ω	22 KΩ
3	12SQ7GT	200 KΩ	4 MEG.	0Ω	540 KΩ	540 KΩ	240K	0Ω	11.5Ω
4	50L6GT	INF.	33Ω	22 KΩ	22 KΩ	440 KΩ	INF.	78Ω	130Ω
5	35Z5GT	0Ω	105Ω	102Ω	130Ω	102Ω	INF.	78Ω	22 KΩ

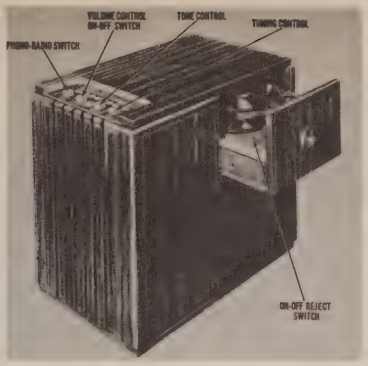
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-14

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



ECA MODEL 121

TRADE NAME	ECA, Model 121
MANUFACTURER	Electronic Corp. of America, 170 53rd St., Brooklyn, N.Y.
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne - Self Contained Loop Ant.
TUBES (SEVEN)	Types, 6SA7GT/G Converter, 6SF7 IF Amp., 6SL7GT Det.-Phase Inverter, (2) 25L6GT/G Power Output, (2) 25Z6GT/G Rectifier
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1725KC RATING .535 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer 2-1/4 inches from left end of metal back-plate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to stator of rear section of variable. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. Lead. Low side to B-.	1500KC	7-23/32 inches from left end metal back-plate.	"	A5	Adjust for maximum output.
200MMFD	"	1500KC	Tune for maximum output.	"	A6	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove the top cover board from the cabinet.
2. Remove eight wood screws from receiver chassis board holding radio receiver and speaker.
3. Disconnect the phono-motor plug.
4. Disconnect the phono-pickup plug.
5. Remove staples holding line cord and antenna wire to bottom side of cabinet.
6. Remove chassis board from cabinet.
7. Remove the push-on type control knobs and washers.
8. Remove the four machine screws and washers holding the chassis to the chassis board.
9. Remove the two wood screws and washers holding the loop antenna to the two wood blocks on the chassis board.
10. Remove four Phillips head screws and washers holding speaker to chassis board.
11. Remove chassis, speaker and loop antenna from chassis board.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ECA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6SA7GT/G	6SA7GT/G	8AD	
2	IF Amp.	6SF7	6SF7	7AZ	
3	Det.-Phase Inv.	6SL7GT	6SL7GT	8BD	
4	Power Output	25L6GT/G	25L6GT/G	7AC	
5	Power Output	25L6GT/G	25L6GT/G	7AC	
6	Rectifier	25Z6GT/G	25Z6GT/G	7Q	
7	Rectifier	25Z6GT/G	25Z6GT/G	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ECA PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8A	40	150	S-CE126M	TA-440	PRSA150-40-	BRD4415	2N514	DSB-2x40-150	Filter - Blue
B	40	150			40				" - Yellow
C	40	150		TA-240	PRSA150-40-	BRD4415	2N511	DSB-2x40-150	" - Red
D	10	150			40				" - Green
9	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
10	.2	200		TC-2	484-.2	DT4P2	TP428	S-4-2	Phono Isolation
11	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
12	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	" "
13	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	" "
14	.001	600		TC-21	684-001	DT6D1	TP404	S-6-001	Tone Compensation
15	.001	600		TC-21	684-001	DT6D1	TP404	S-6-001	Audio Coupling
16	.2	200		TC-2	484-.2	DT4P2	TP428	S-4-2	Line Isolation
17	.2	200		TC-2	484-.02	DT4P2	TP428	S-4-2	Conv. Screen Bypass
18	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
19	.005	400		TC-25	484-005	DT6D5	TP408	S-6-005	Ext. Ant. Isolation
20	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Audio Plate Bypass
21	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Diode Filter
22	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	" "
23	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Grid Capacitor

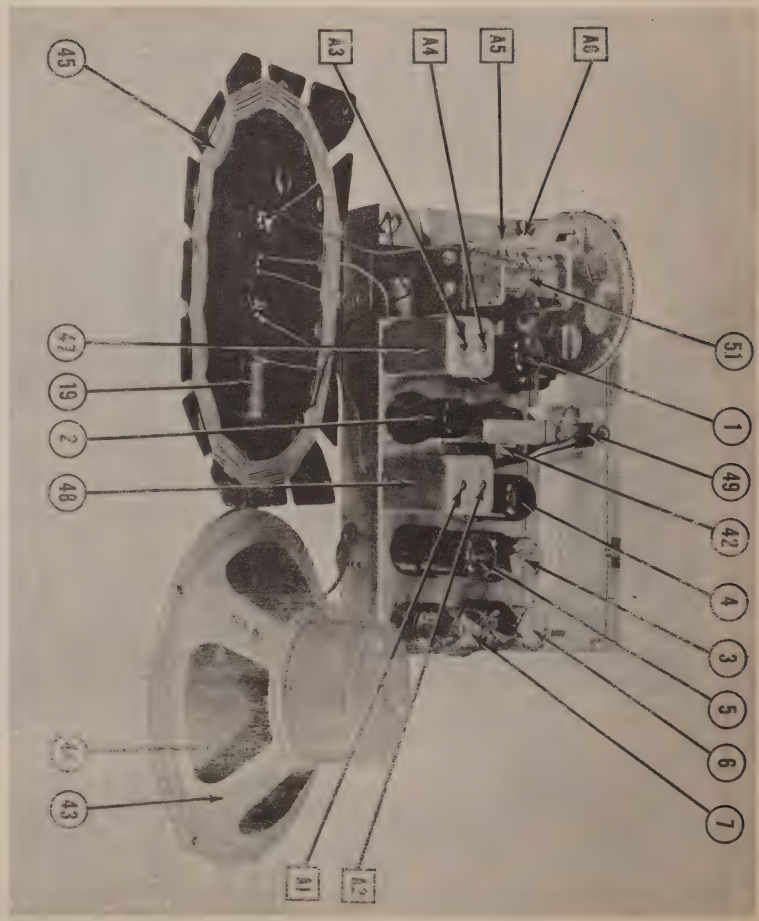
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ECA PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
24A	500KΩ	1	S-RV171-1	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 24A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
25A	500KΩ	1	SRV-174-1	MR48	D13-133	M-60-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 25A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ECA PART No.	IRC PART No.	IDENTIFICATION CODES
26	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
27	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation
28	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
29	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Diode RF Filter
30	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Diode Load
31	30Ω	½		BW-½-33	Or.-Blk.-Blk. Feedback
32	100Ω	½		BW-½-100	Br.-Blk.-Br. "
33	2200Ω	½		BTS-2200	Red-Red-Red Audio Cathode
34	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Audio Plate Load
35	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
36	18KΩ	½		BTS-18K	Br.-Gray-Or. Phase Inverter Grid
37	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
38	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
39	82Ω	1		BW-1-82	Gray-Red-Blk. Output Cathode
40	1500Ω	½		BTS-1500	Br.-Grn.-Red Filter
41	1500Ω	2		BT-2-1500	Br.-Grn.-Red Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ECA PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
42	9700Ω CT	5.5Ω	230Ω CT	.5Ω		A-3823	T22556*		*Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ECA PART No.	JENSEN PART No.		
43	FIELD PM	VC IMP. 5.3Ω		ST-116† Mod. P8-U		†Replace output transformer to match 3.2Ω voice coil.
44	CONE DIA. 7-7/8"	VC DIA. 7/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

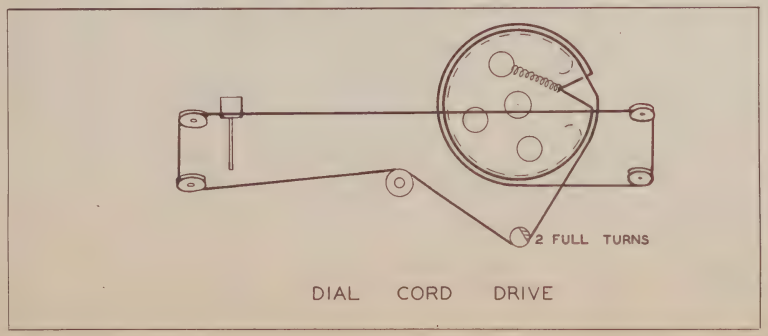
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	ECA PART No.	MEISSNER PART No.
45	Loop Ant.	.1Ω	1Ω	C-ZQ522	
46	Osc. Coil		6Ω	S-LR-120	14-1040
47	Input IF	14.5Ω	14.5Ω	S-LR-127	16-6658
48	Output IF	11Ω	11Ω	S-LR-128	16-6660

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ECA PART No.		
49	Screw	125	.05				3 watt

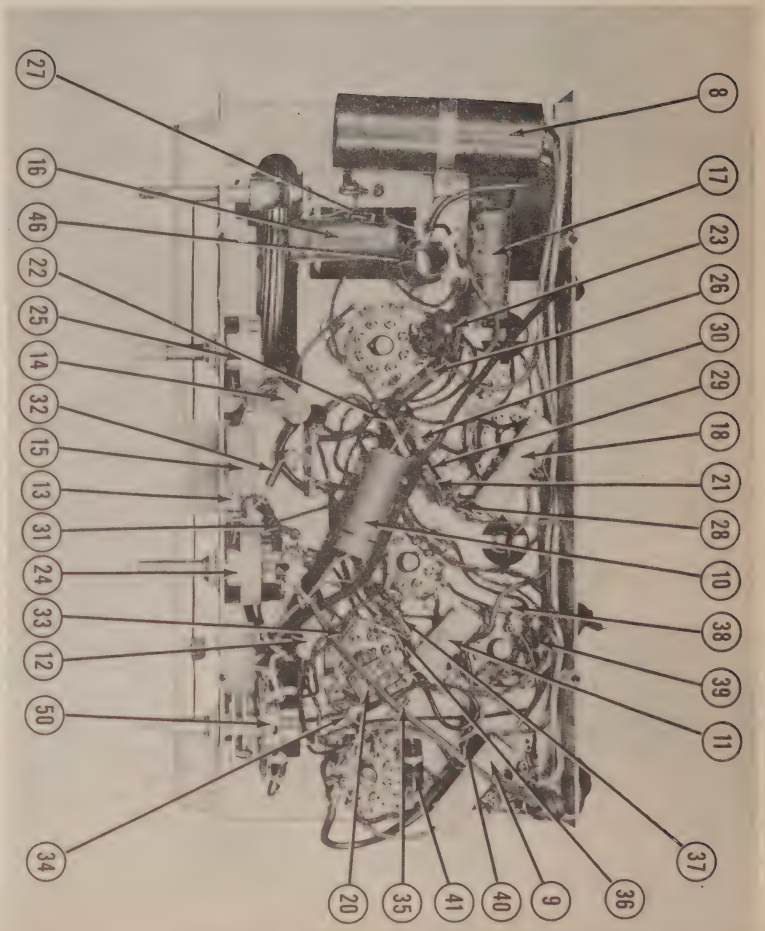
MISCELLANEOUS

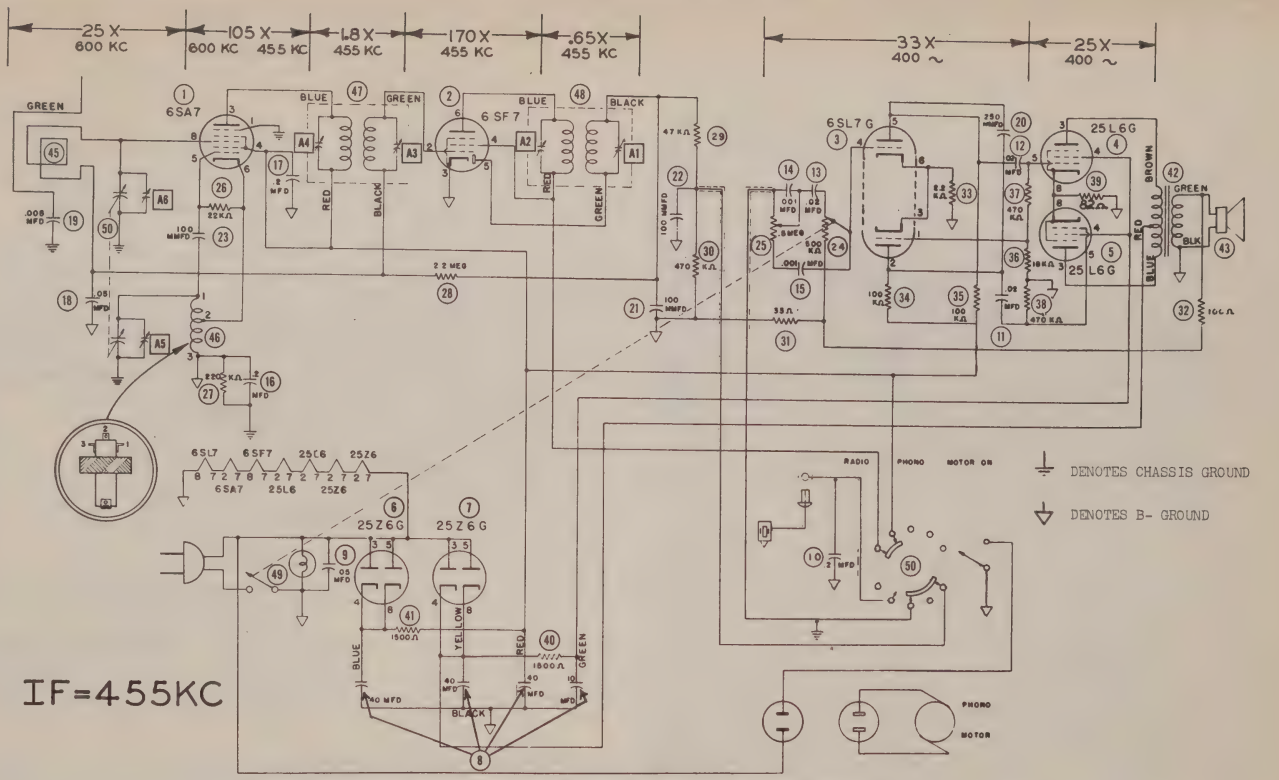
ITEM No.	PART NAME	ECA PART No.	NOTES
50	Switch		Radio-Phono
51	2 Gang Var. Cap.	S-ZQ-500	(32-482 MMF, 28-194 MMF)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7GT/G	0V.	6.5V.AC	98V.DC	98V.DC	-9.6V.DC	0V.	12V.AC	+3V.DC
2	6SF7	0V.	+3V.DC	0V.	98V.DC	+3V.DC	98V.DC	18V.AC	12V.AC
3	6SL7GT	0V.	73V.DC	1V.DC	0V.	73V.DC	1V.DC	0V.	6.5V.AC
4	25L6GT/G	0V.	41V.AC	123V.DC	117V.DC	0V.	0V.	18V.AC	8.2V.DC
5	25L6GT/G	0V.	68V.AC	123V.DC	117V.DC	0V.	0V.	41V.AC	8.2V.DC
6	25L6GT/G	0V.	117V.AC	117V.AC	128V.DC	117V.AC	98V.DC	93V.AC	128V.DC
7	25L6GT/G	0V.	93V.AC	117V.AC	128V.DC	117V.AC	0V.	68V.AC	128V.DC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7GT/G	195KΩ	3Ω	90KΩ	90KΩ	20KΩ	.5Ω	6Ω	2.5MEG.
2	6SF7	195KΩ	2.5MEG.	0Ω	90KΩ	450KΩ	90KΩ	10Ω	6Ω
3	6SL7GT	18KΩ	190KΩ	2KΩ	400KΩ	190KΩ	2KΩ	0Ω	3Ω
4	25L6GT/G	INF.	18Ω	90KΩ	90KΩ	490KΩ	INF.	10Ω	82Ω
5	25L6GT/G	INF.	33Ω	90KΩ	90KΩ	450KΩ	0Ω	18Ω	82Ω
6	25L6GT/G	INF.	60Ω	60Ω	90KΩ	60Ω	90KΩ	46Ω	90KΩ
7	25L6GT/G	INF.	46Ω	60Ω	90KΩ	60Ω	INF.	33Ω	90KΩ

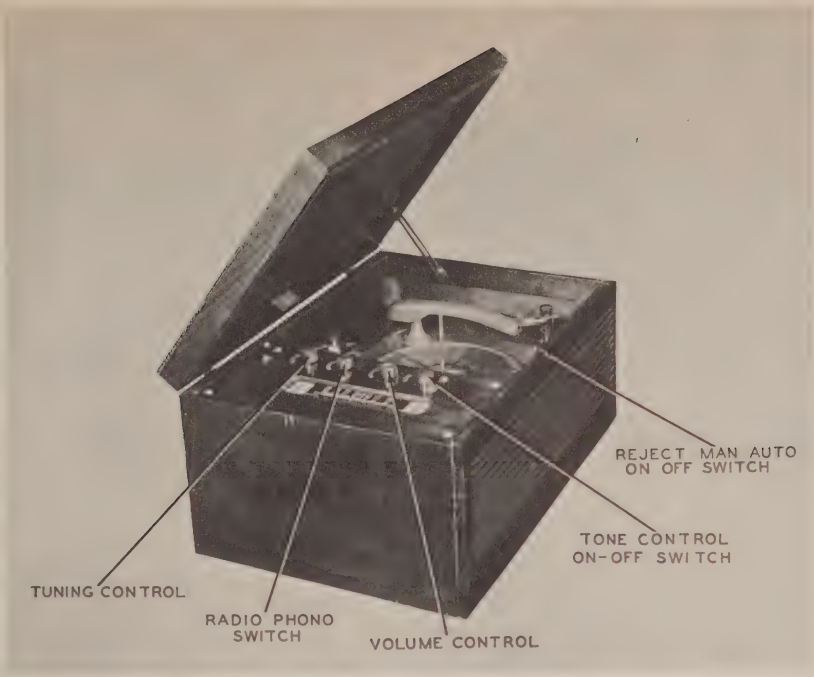
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-15

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ELECTRO-TONE
MODEL 555



ELECTRO-TONE
MODEL 555

ELECTRO-TONE MODEL 555

TRADE NAME	Electro-Tone, Model 555
MANUFACTURER	Electro-Tone Corp., 221 Hudson St., Hoboken, N.J.
TYPE SET	AC Operated Combination Phono - Radio Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	535-1650KC RATING .235 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MMFD	High side to ext. ant. lead and low side to chassis.	1650KC	"	"	A5	Adjust for maximum output.
200MMFD	"	1400KC	Tune for maximum output.	"	A6	" " " "
200MMFD	"	600KC	"	"	A7	Rock variable and adjust for maximum output. Repeat last three steps.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		ELECTRO-TONE PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7	12SA7	8R	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7	12SQ7	8Q	
5	Power Output	50L6GT	50L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	ELECTRO-TONE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	
7A	50	150		TA-530	PRSA150-40-40	BRD3515	2N520	DSB-5030-150	Filter - Red
B	30	150							" - Green
8	.005	600		TC-25	684-005	DT6D5	TP408	S-6-005	Tone Compensation
9	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	Audio Coupling
10	.005	600		TC-25	684-005	DT6D5	TP408	S-6-005	" "
11	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	AVC Filter
12	.25	200		TC-2	484-.25	DT4P25	TP430	S-4-25	Line Isolation
13	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	RF Cath. Bypass
14	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
15	220	500		1FM-32	1468-0002	5W5T2	5W5T2	MO.5-32	Audio Plate Bypass
16	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	IF Bypass Diode
17	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	IF Bypass Vol. Cont.
18	47	500		1FM-45	1468-00005	5W5Q5	MC225	MO.5-45	Osc. Grid Capacitor
19	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	RF Coupling

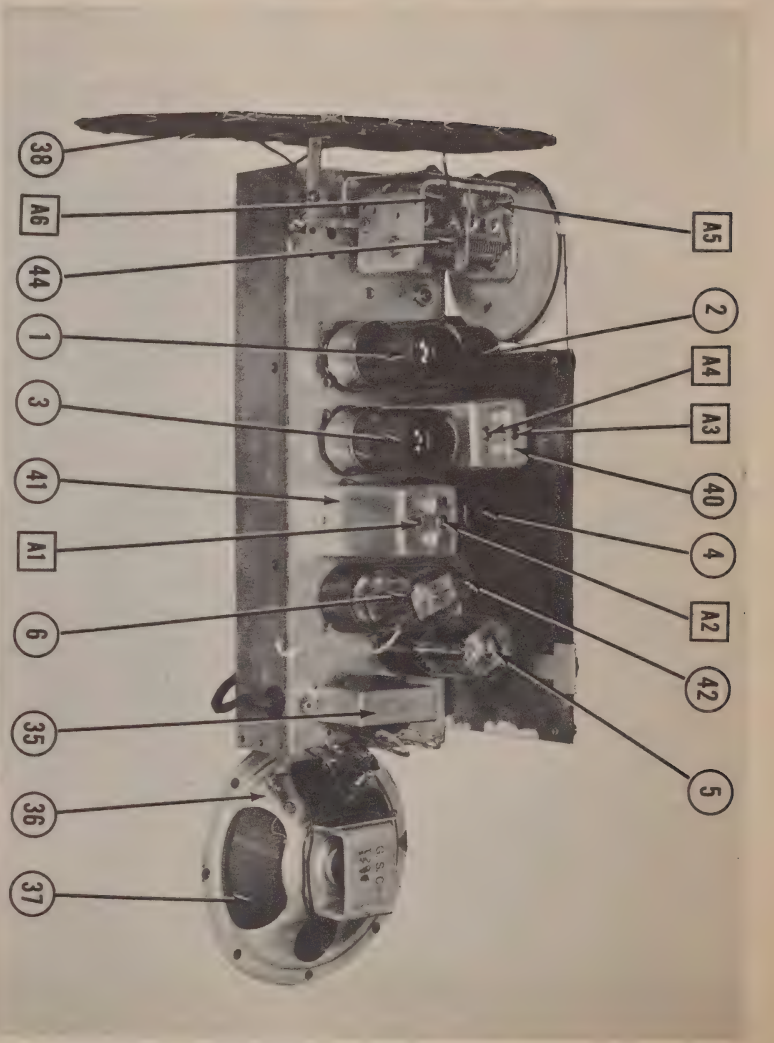
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	ELECTRO-T. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 20A per instructions
C	Switch			M26	41	SW-A	" " " " "
21A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 21A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ELECTRO-TONE PART No.	IRC PART No.	
22	1500Ω	½		BTS-1500	Br.-Grn.-Red RF Cathode
23	5100Ω	½		BTS-4700	Grn.-Br.-Red RF Plate Load
24	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Line Isolation
25	150KΩ	½		BTS-150K	Br.-Grn.-Yl. Converter Grid
26	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
27	2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
28	160KΩ	½		BTS-150K	Br.-Blue-Yl. Phono Shunt
29	50KΩ	½		BTS-47K	Grn.-Blk.-Or. Diode RF Filter
30	6.8 Meg.	½		BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
31	330KΩ	½		BTS-330K	Or.-Or.-Yl. AF Plate Load
32	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
33	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
34	1500Ω	½		BTS-1500	Br.-Grn.-Red Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ELECTRO-TONE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
35	2000Ω	3.2Ω	100Ω	.5Ω		A-3876	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ELECTRO-TONE PART No.	JENSEN PART No.		
36	FIELD FM	VC IMP. 3.2Ω		ST-105 Mod. P5-X		
37	CONE DIA. 4-3/4"	VC DIA. 1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

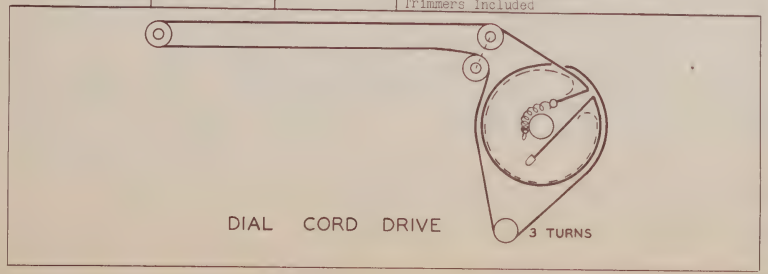
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	ELECTRO-TONE PART No.	MEISSNER PART No.	
38	Loop Ant.	0Ω	1.2Ω			
39	Osc. Coil		5.5Ω		14-1040	
40	Input IF	14.5Ω	14.5Ω		16-6658	
41	Output IF	20.5Ω	20Ω		16-6660	

DIAL LIGHT

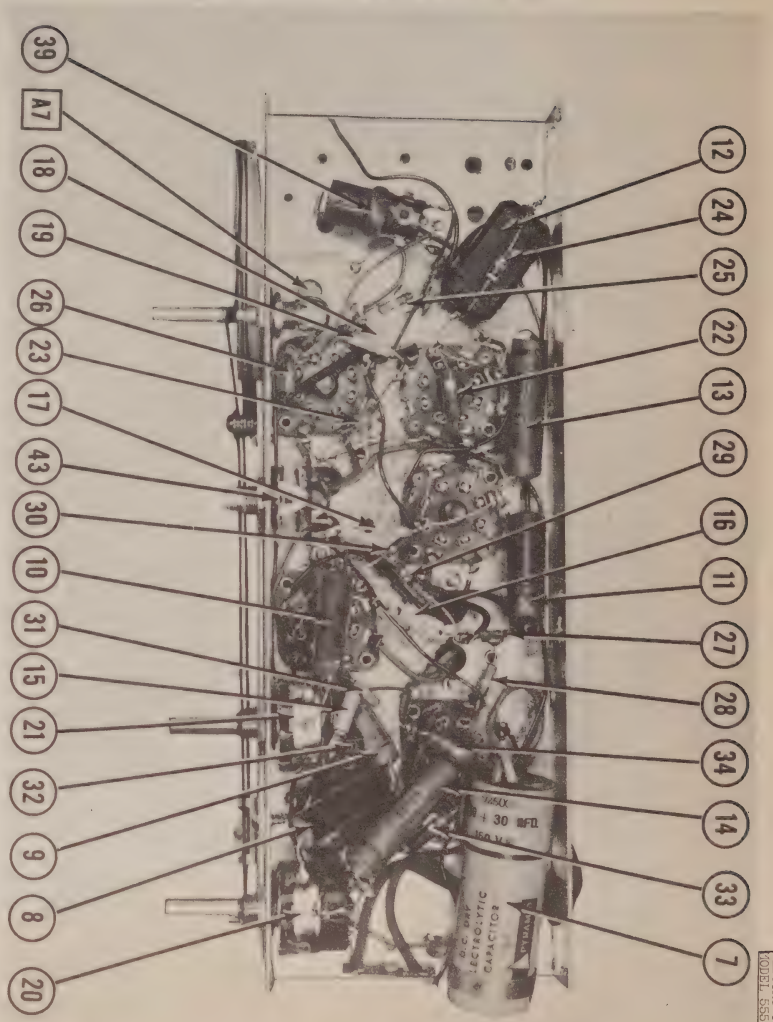
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ELECTRO-TONE PART No.		
42	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	ELECTRO-TONE PART No.	NOTES
43 44	Switch 2 Gang Var. Cap		Radio-Phono (33-510 MMF, 33-510 MMF) Trimmers Included

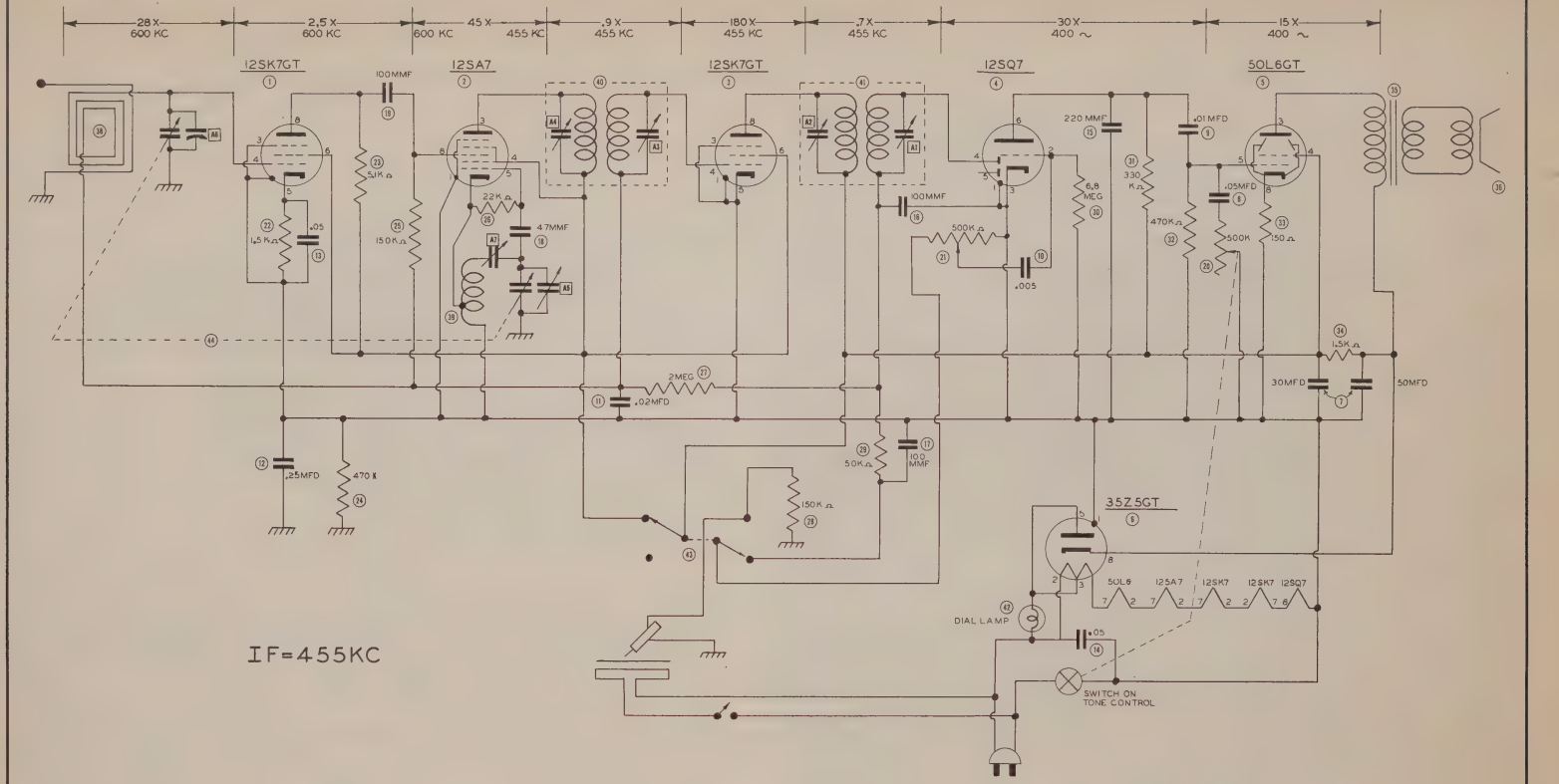


CHASSIS—BOTTOM VIEW



ELECTRO-TONE
MODEL 555

ELECTRO-TONE
MODEL 555



NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN RADIO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	22V.AC	0V.	±2V.DC	-6,8V.DC	87V.DC	33V.AC	77V.DC
2	12SA7	0V.	33V.AC	87V.DC	87V.DC	-2,3V.DC	0V.	42,5V.AC	1V.DC
3	12SK7GT	0V.	22V.AC	0V.	±2V.DC	0V.	87V.DC	1,5V.AC	87V.DC
4	12SQ7	0V.	±4V.DC	0V.	±35V.DC	0V.	52V.DC	0V.	1,5V.AC
5	50L6GT	0V.	42,5V.AC	117V.DC	87V.DC	0V.	0V.	89V.AC	5,3V.DC
6	35Z5GT	0V.	117V.AC	113V.AC	87V.DC	113V.AC	0V.	89V.AC	122V.DC

RESISTANCE READINGS

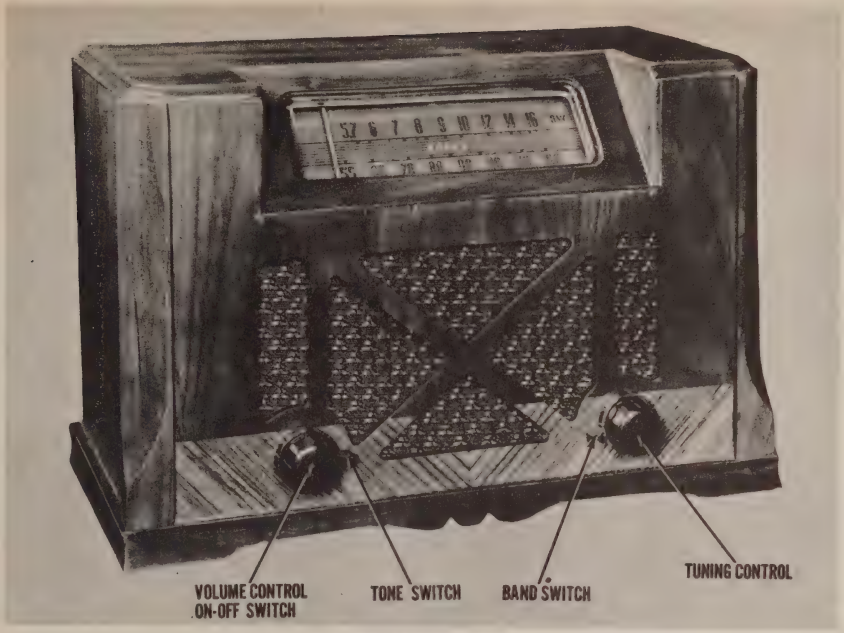
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0 Ω	22 Ω	0 Ω	2,3MEG.	1,5KΩ	60KΩ	33 Ω	65KΩ
2	12SA7	0 Ω	33 Ω	60KΩ	60KΩ	19KΩ	.5 Ω	43 Ω	2,5MEG.
3	12SK7GT	0 Ω	22 Ω	0 Ω	2,3MEG.	0 Ω	60KΩ	12 Ω	60KΩ
4	12SQ7	0 Ω	7MEG.	0 Ω	520KΩ	INF.	390KΩ	0 Ω	12 Ω
5	50L6GT	INF.	43 Ω	60KΩ	60KΩ	420KΩ	INF.	84 Ω	135 Ω
6	35Z5GT	0 Ω	108 Ω	105 Ω	60KΩ	105 Ω	630KΩ	84 Ω	60KΩ

RESISTANCE READINGS IN THE B- CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-16

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



ESPEY MODEL RR13

TRADE NAME	Espey, Models RR13, RR13L
MANUFACTURER	Espey Mfg. Co., Inc., 528 E. 72nd St., New York 21, N.Y.
TYPE SET	AC-DC 2 Band Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 7B7 RF Amp., 14Q7 Converter, 7B7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC — RATING .260 Amps. @ 117V AC
TUNING RANGE—BROADCAST	535-1700KC — SHORT WAVE 5.3-18MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer to reference mark at bottom of left end of dial. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and chassis. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side to chassis.	455KC	BC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
.1 MFD.	"	"	"	Variable fully closed	"	A5	Adjust for minimum output
200MMFD	High side to ext ant. lead. Low side to chassis.	1500KC	"	1500KC	"	A6	Adjust for maximum output
200MMFD	"	"	"	Tune for maximum output.	"	A7	" " " "
200MMFD	"	600KC	"	"	"	A8	Rock variable and adjust for maximum output. Repeat last three steps until no further increase can be obtained.
400Ω	"	16MC	SW	16MC	"	A9	Adjust for maximum output
400Ω	"	16MC	"	Tune for maximum output.	"	A10	Rock variable and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: ESPEY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7B7	7B7	8V	
2	Converter	14Q7	14Q7	8AL	
3	IF Amp.	7B7	7B7	8V	
4	Det.-AVC-AF	14B6 .	14B6	8W	
5	Power Output	50A5	50A5	6AA	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ESPEY PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150		TA-303	PRSA150-40-40	EZ443150C	2N513	DSB-403020-150	Filter - Red
B	30	150							" - Blue
C	30	150			PRS150-30		TC47		" - Yellow
8	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Line Filter
9	.03	400		TC-13	484-03	DT4S3	TP424	S-6-03	Tone Compensation
10	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
11	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
12	.25	200		TC-2	484-.25	DT4P25	TP430	S-4-25	RF Bypass Pwr. Supp.
13	.1	200		TC-1	484-.1	DT4P1	TP428	S-4-1	AVC Filter
14	.001	600		TC-21	684-001	DT6D1	TP404	S-6-001	RF Coupling
15	.0001	600		TC-31	1468-0001	DT6T1	TP401	M0.5-31	Osc. Grid Capacitor
16	6900	300		1FM-27	1467-006	1D3D7	MC469	MW.3-27	Audio Coupling
17	4000	300		1FM-24	1467-004	1D3D4	MC463	MW.3-24	Fixed Padder
18	6900	300		1FM-27	1467-006	1D3D7	MC469	MW.3-27	Ant. Isolation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ESPEY PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch			M26	41	SW-A	" " " " "

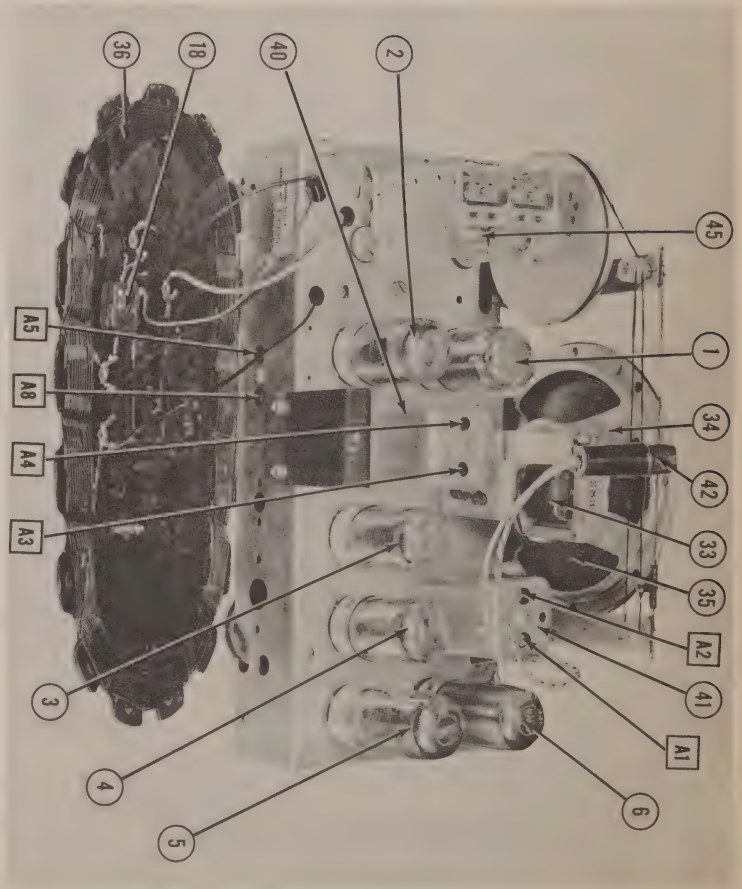
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ESPEY PART No.	IRC PART No.	IDENTIFICATION CODES
20	3300Ω	½		BTS-3300	Or.-Or.-Red RF Plate Load
21	6800Ω	½		BTS-6800	Blue-Gray-Red Peaking Coil Shunt
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Converter Grid
23	3.3 Meg.	½		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
24	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
25	120Ω	½		BW-½-120	Br.-Red-Br. Parasitic Suppressor
26	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
27	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AF Grid
28	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
29	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
30	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
31	390Ω	1		BTA-390	Or.-White-Br. Filter
32	100Ω	1		BW-1-100	Br.-Blk.-Br. Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ESPEY PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
33	2000Ω	3.1Ω	220Ω	.9Ω		A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: ESPEY PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-107		
34	PM	3.1Ω		Mod. P5-V		
	CONE DIA.	VC DIA.				
35	4-3/4"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

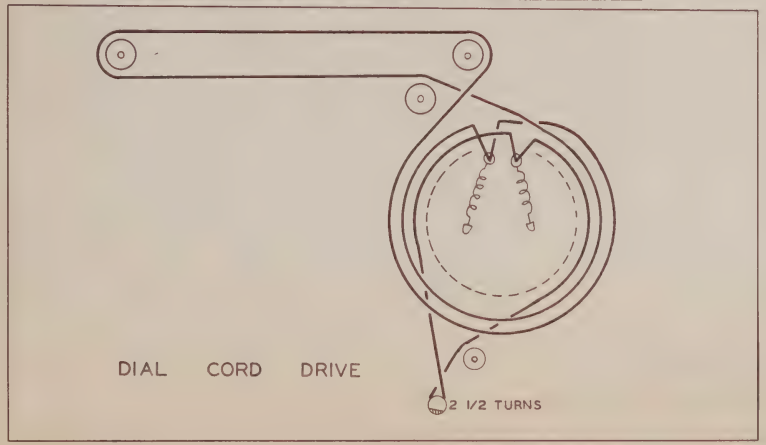
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: ESPEY PART No.	MEISSNER PART No.	
36	Loop Ant.	.5Ω	.8Ω			
37	SW Ant.Coil	.2Ω	0Ω		14-1044	
38A	BC Osc.Coil		7.5Ω	L-13311A-2		38A & 38B wound on same form
B	SW Osc.Coil		.5Ω			
39A	Wave Trap		31Ω	Z-13309A-1		39A & 39B wound on same form
B	Peaking Coil		1Ω			
40	Input IF	25Ω	25Ω	Z-13902	16-6658	
41	Output IF	13Ω		Z-13903	16-6670	

DIAL LIGHT

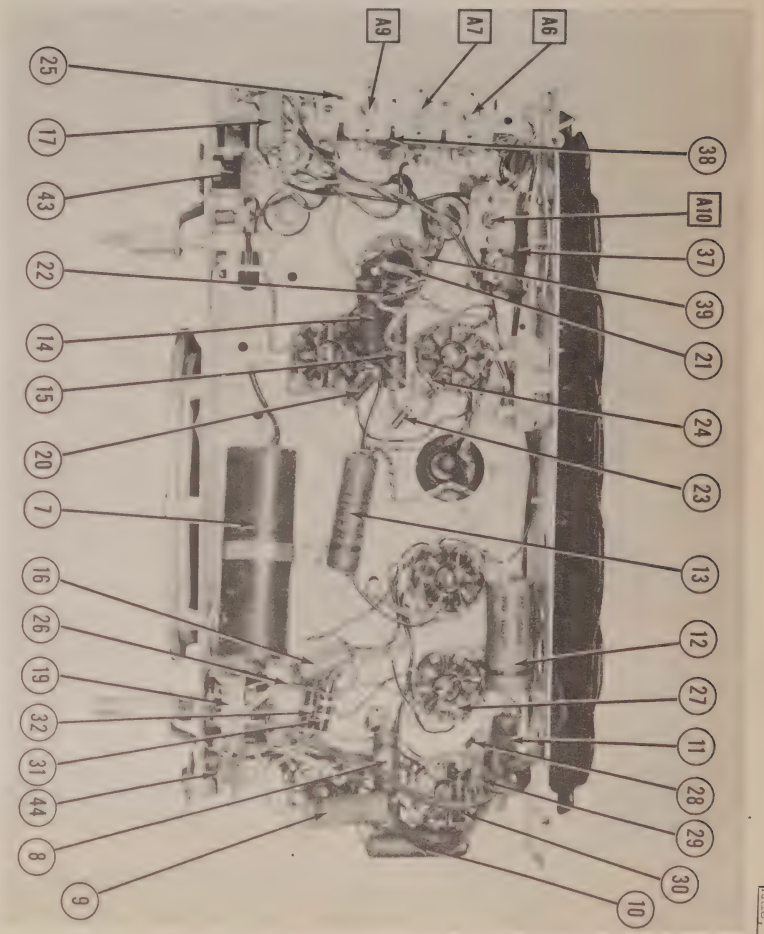
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: ESPEY PART No.		INSTALLATION NOTES
42	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	ESPEY PART No.	NOTES
43	Band Switch		
44	Tone Switch		
45	2 Gang Var.Cap.		(14-470 MMF, 14-470 MMF)

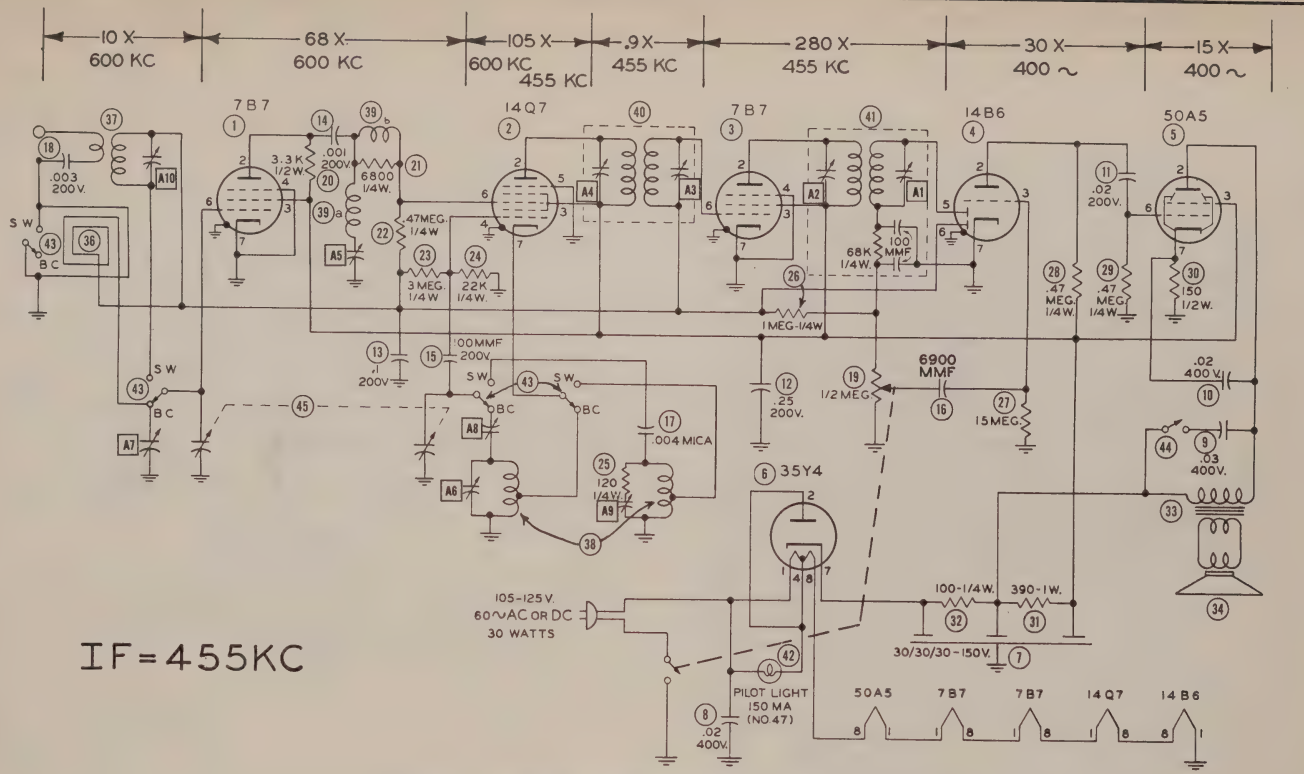


CHASSIS—BOTTOM VIEW



ESPEY MODELS RA13, RA13LP

ESPEY MODELS RA13, RA13LP



NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	32V.AC	68V.DC	93V.DC	0V.	0V.	-.7V.DC	0V.	25V.AC
2	14Q7	13V.AC	93V.DC	93V.DC	-2.4V.DC	0V.	-.4V.DC	0V.	25VAC
3	7B7	37.5V.AC	93V.DC	93V.DC	0V.	0V.	-.7V.DC	0V.	32V.AC
4	14B6	0V.	62V.DC	-.55V.DC	0V.	-.55V.DC	-.7V.DC	0V.	13V.AC
5	50A5	37.5V.AC	100V.DC	93V.DC	0V.	0V.	0V.	5.7V.DC	86V.AC
6	35Y4	117V.AC	112V.AC	NO LUG.	112V.AC	93V.DC	108V.DC	117V.DC	86V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7B7	29Ω	83KΩ	80KΩ	0Ω	0Ω	925KΩ	0Ω	23Ω
2	14Q7	12Ω	80KΩ	80KΩ	22KΩ	0Ω	1.4MEG.	.5Ω	23Ω
3	7B7	35Ω	80KΩ	80KΩ	0Ω	0Ω	925KΩ	0Ω	29Ω
4	14B6	0Ω	550KΩ	15 MEG.	0Ω	450KΩ	925KΩ	0Ω	12Ω
5	50A5	35Ω	80KΩ	80KΩ	0Ω	INF.	450KΩ	130Ω	80Ω
6	35Y4	108Ω	105Ω	NO LUG	105Ω	80KΩ	80KΩ	80KΩ	80Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

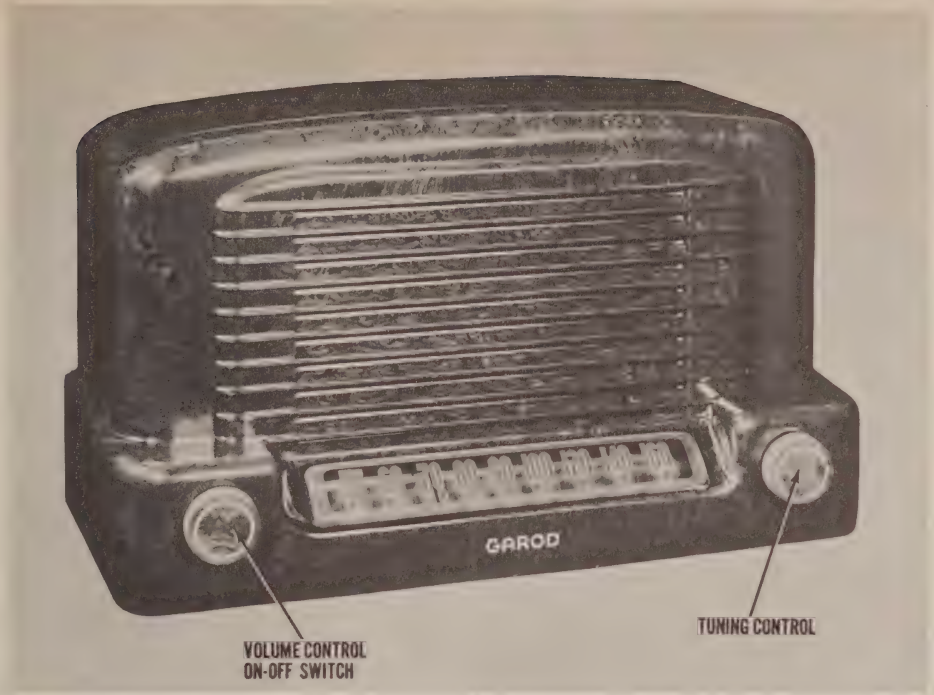
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-17

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

GAROD
MODEL 6BU-1A



GAROD
MODEL 6BU-1A

GAROD MODEL 6BU-1A

TRADE NAME	Garod Model 6BU-1A "The Senator"
MANUFACTURER	Garod Radio Corp., 70 Washington St., Brooklyn 1, N.Y.
TYPE SET	AC-DC Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 6SS7 RF Amp., 12SA7GT Converter, 6SS7 IF Amp., 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1650KC RATING .255 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
Direct	High side to stator of rear section of variable. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
	Loop	1650KC	"	"	A5	Fashion loop of several turns and radiate signal into receiver loop. Adjust for maximum output.
	"	"	"	"	A6,A7	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: GAROD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SS7	6SS7	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	6SS7	6SS7	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	50L6GT	50L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GAROD PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	150	5.400-7	EL-24	AF844D †	BR2015		DY-804020-150	Filter
B	80	150		EL-123	PRS150-50	UP6CJ441			■ Filter
C	40	150							▲ "
8	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
9	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
10	.01	200		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
11	.01	200		TC-11	484-01	DT4S1	TP421	S-4-01	" "
12	.02	200		TC-12	484-02	DT4S2	TP423	S-4-02	AVC Filter
13	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Fixed Padder
14	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	AVC Filter
15	.2	400		TC-2	484-.2	DT4P2	TP429	S-4-2	Line Isolation
16	.005	600		TC-25	684-005	DT6D5	TP408	S-6-005	Ext. Grnd. Isolation
17	.02	200		TC-12	484-02	DT4S2	TP423	S-4-05	RF Cath. Bypass
18	220	500		1FM-32	1468-0002	5W5T2	MC237	MO.5-32	Audio Plate Bypass
19	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	IF Bypass Vol. Cont.
20	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	IF Bypass Diode

†Parallel sections to obtain desired capacity.

CONTROLS

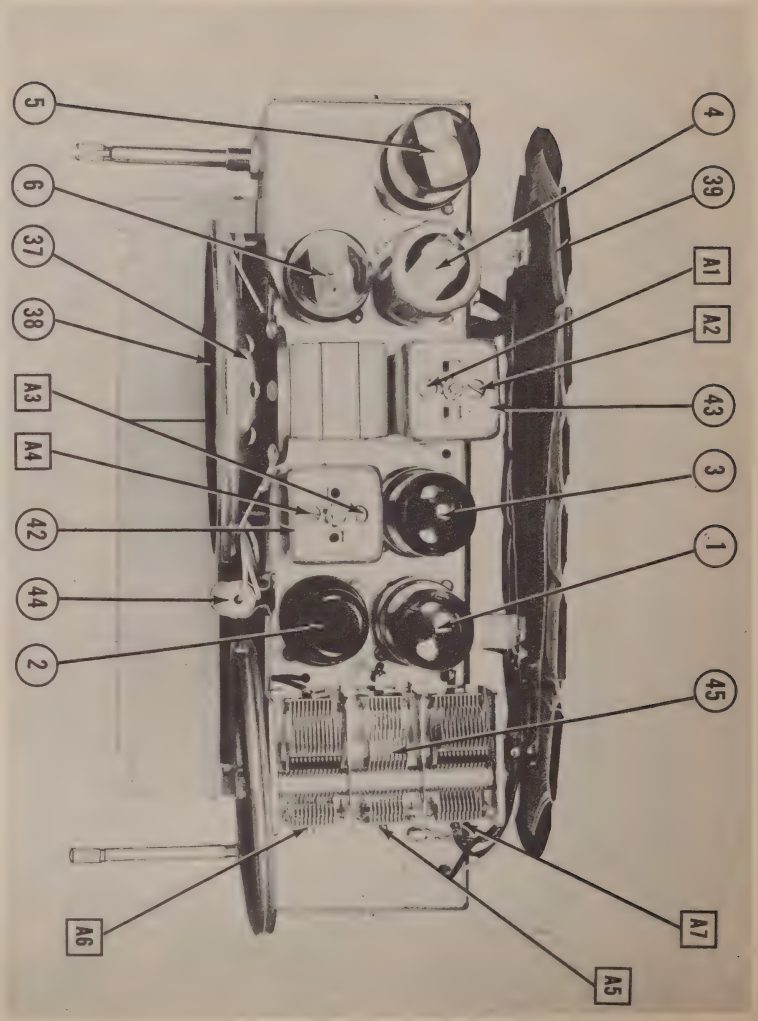
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GAROD PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21A	1 Meg.	1	8.200-4	MK402#	D13-137#	AM-63-2#	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 21A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

#Install a 47KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down.)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GAROD PART No.	IRC PART No.	IDENTIFICATION CODES
22	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation
23	680Ω	½		BTS-680	Blue-Gray-Br. RF Cathode
24	8200Ω	½		BTS-8200	Gray-Red-Red RF Plate Dropping
25	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
26	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
27	150Ω	½		BW-½-150	Br.-Grn.-Br. IF Cathode
28	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
29	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
30	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
31	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
32	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
33	100Ω	½		BW-½-100	Br.-Blk.-Br. Filter
34	1000Ω	1		BTA-1000	Br.-Blk.-Red "
35	270Ω	½		BW-½-270	Red-Vi.-Br. Pilot Light Shunt

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		GAROD PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
36	1650Ω	3.1Ω	150Ω	.45Ω	9.200	A-3376	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GAROD PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-1071		‡Fabricate new mounting bracket.
37	PM	3.1Ω	30.300	Mod. P8-V		
	CONE DIA.	VC DIA.				
38	4½"	½"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

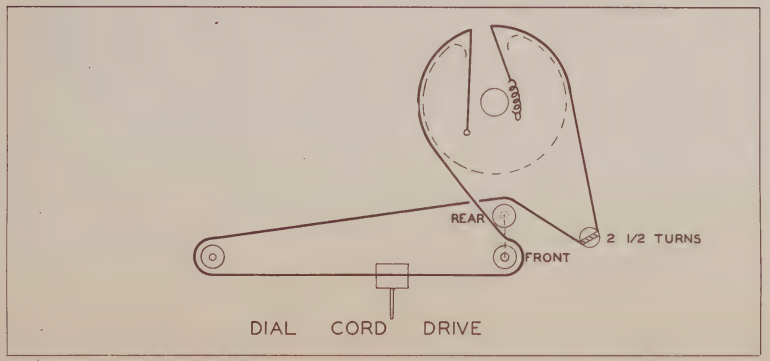
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	GAROD PART No.	MEISSNER PART No.	
39	Loop Ant.	0Ω	1.5Ω	1.421		
40	RF Coil	25Ω	5Ω	1.420	14-1026	
41	Osc. Coil	1	8Ω	1.402-1	14-1040	
42	Input IF	46Ω	43Ω	1.259	16-6658	
43	Output IF	42Ω	44Ω	1.409	16-6660	

DIAL LIGHT

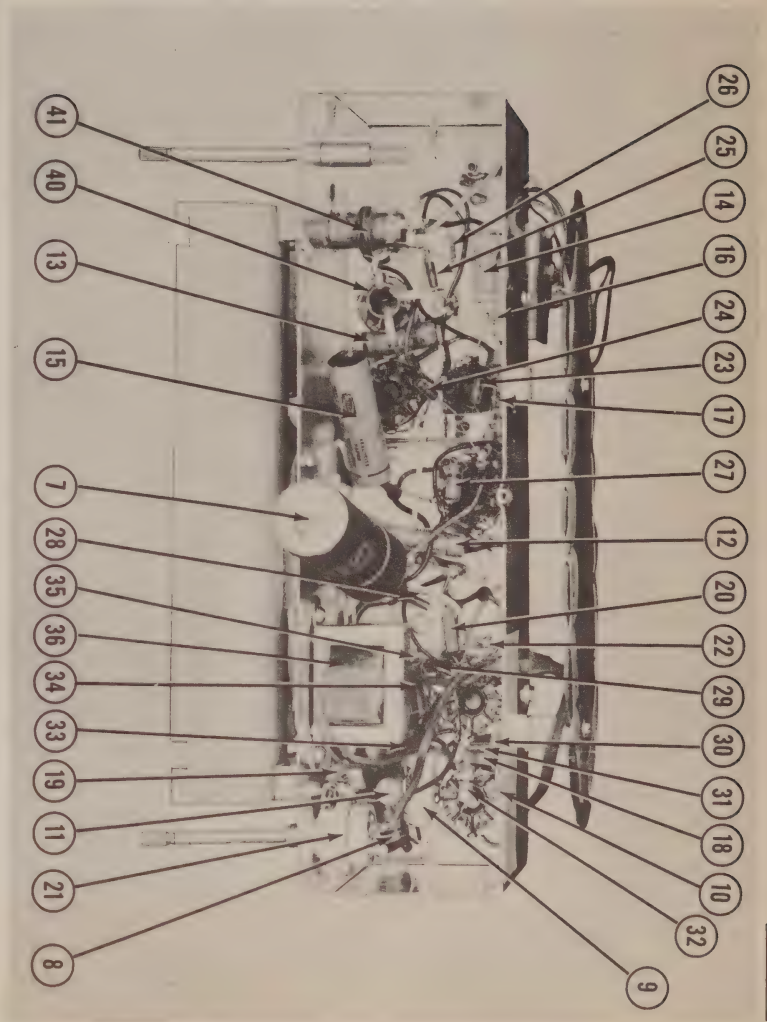
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GAROD PART No.		
44	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	GAROD PART No.	NOTES
45	3 Gang Var. Cap	2.201	(26-378, 26-378, 13-178 MMF)

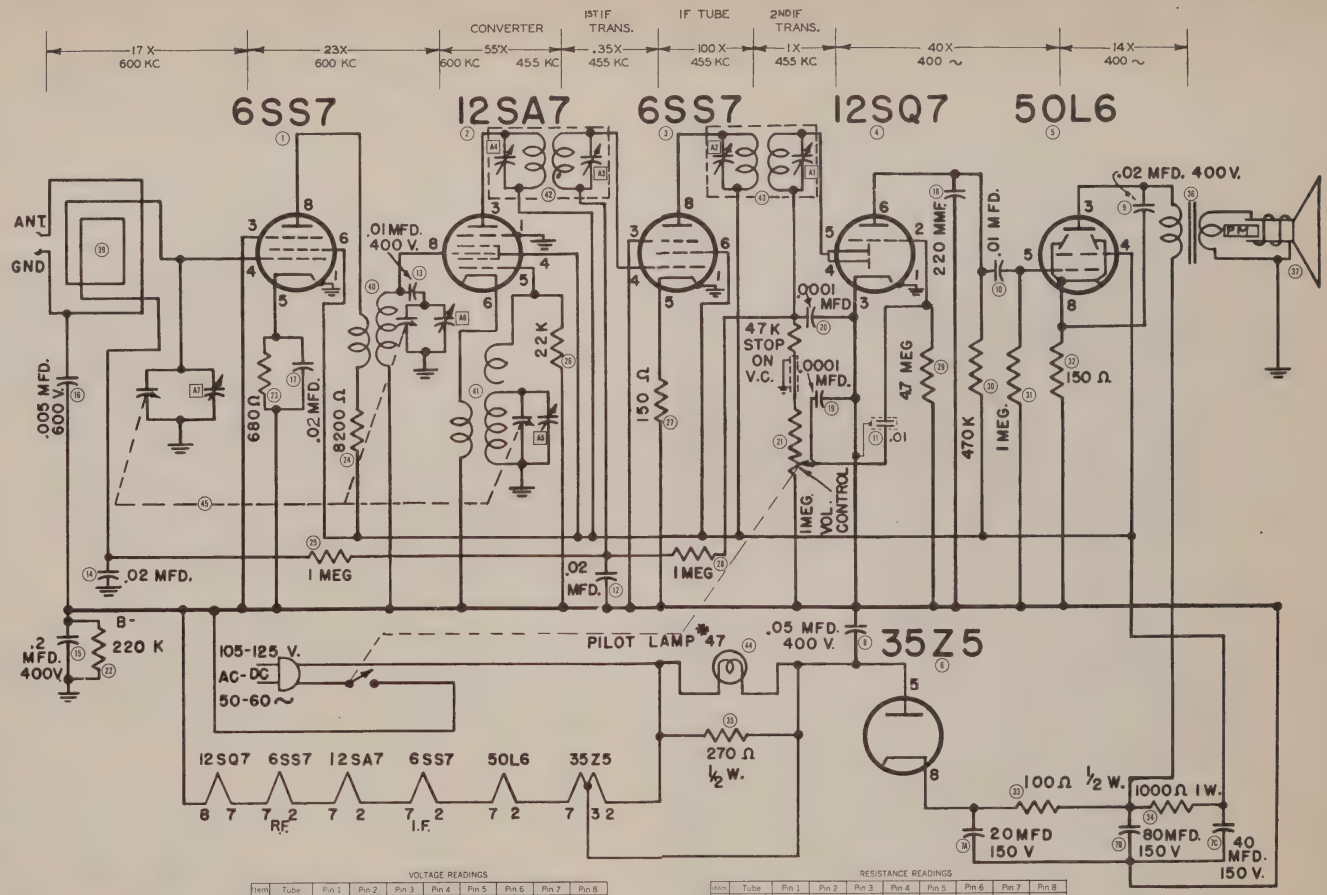


CHASSIS—BOTTOM VIEW



GAROD MODEL 6BU-1A

GAROD MODEL 6BU-1A



IF = 455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SS7	0 V.	19V.AC	0 V.	-1V.DC	3V.DC	90V.DC	13V.AC	68V.DC
2	12SA7	0 V.	30V.AC	90V.DC	90V.DC	-4.8V.DC	0 V.	19V.AC	0 V.
3	6SS7	0 V.	36V.AC	0 V.	-1V.DC	1.5V.DC	90V.DC	30V.AC	90V.DC
4	12SQ7GT	0 V.	-1.1V.DC	0 V.	-7V.DC	56V.DC	56V.DC	13V.AC	0 V.
5	50L6GT	0 V.	88V.AC	108V.DC	90V.DC	0 V.	0 V.	35V.AC	6.2V.DC
6	35Z5GT	0 V.	117V.AC	113V.AC	90V.DC	113V.AC	118V.DC	88V.AC	121V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SS7	220K Ω	18 Ω	0 Ω	3MEG	700 Ω	50K Ω	12 Ω	58K Ω
2	12SA7	220K Ω	30 Ω	50K Ω	50K Ω	20K Ω	8 Ω	18 Ω	4.5 Ω
3	6SS7	220K	35 Ω	0 Ω	1.8MEG	158 Ω	50K Ω	30 Ω	50K Ω
4	12SQ7GT	220K Ω	4 MEG	0 Ω	95K Ω	95K Ω	520K Ω	12 Ω	0 Ω
5	50L6GT	1 MEG.	80 Ω	50K Ω	50K Ω	880K Ω	1 MEG.	35 Ω	130 Ω
6	35Z5GT	1 MEG.	103 Ω	100 Ω	50K Ω	100 Ω	50K Ω	80 Ω	50K Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-18

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

GENERAL TELEVISION
MODEL 22A5C

GENERAL TELEVISION MODEL 22A5C

TRADE NAME	General Television Model 22A5C
MANUFACTURER	General Television & Radio Corp., 2701 Lehmann Ct., Chicago, Ill.
TYPE SET	AC Operated Combination Radio-Phono with Self Contained Loop Antenna
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1720KC RATING .240 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To adjust pointer turn variable fully closed and set pointer parallel to line under 55 and 170. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and chassis. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
	"	1400KC	Tune for maximum output.	"	A6	"

DISASSEMBLY INSTRUCTIONS

1. Remove the receiver push-on type control knobs.
2. Remove four Phillips head screws from radio-phono-switch plate. Slide plate and switch through hole in cabinet.
3. Remove the two hex head machine screws holding chassis to cabinet. Pull chassis out of cabinet just far enough to unsolder the phono-pickup leads and phono-motor leads from the radio-phono switch and terminal strip on chassis.
4. Remove chassis from cabinet.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: GENERAL TELE. PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8V	
3	Det.-AVC-AF	14B6	14B6	8W	
4	Power Output	50A5	50A5	6AA	
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GENERAL TELEVISION PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150		EL-24	AF84D4AT	UP4CJ391	FP306†	DY-4020-150	■ Filter
B	20	150							▲ "
7	.1	200		TC-1	484-.1	DT4P1	TP428	S-4-1	Line Filter
8	.1	400		TC-1	484-.1	DT4P1	TP428	S-4-1	Line Isolation *
9	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
10	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
11	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	" "
12	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
13	250	500		1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Audio Plate Bypass
14	100	500		1FM-31	1468-0001	5W5T1	MC235	M0.5-31	IF Bypass Diode
15	100	500		1FM-31	1468-0001	5W5T1	MC235	M0.5-31	Osc. Grid Capacitor

*Not used in all models.
†Do not use bypass section.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GENERAL TELE. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	500KΩ	1	20-1	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 16A per instructions.
C	Switch		" "	M26	41	SW-A	" " " " "

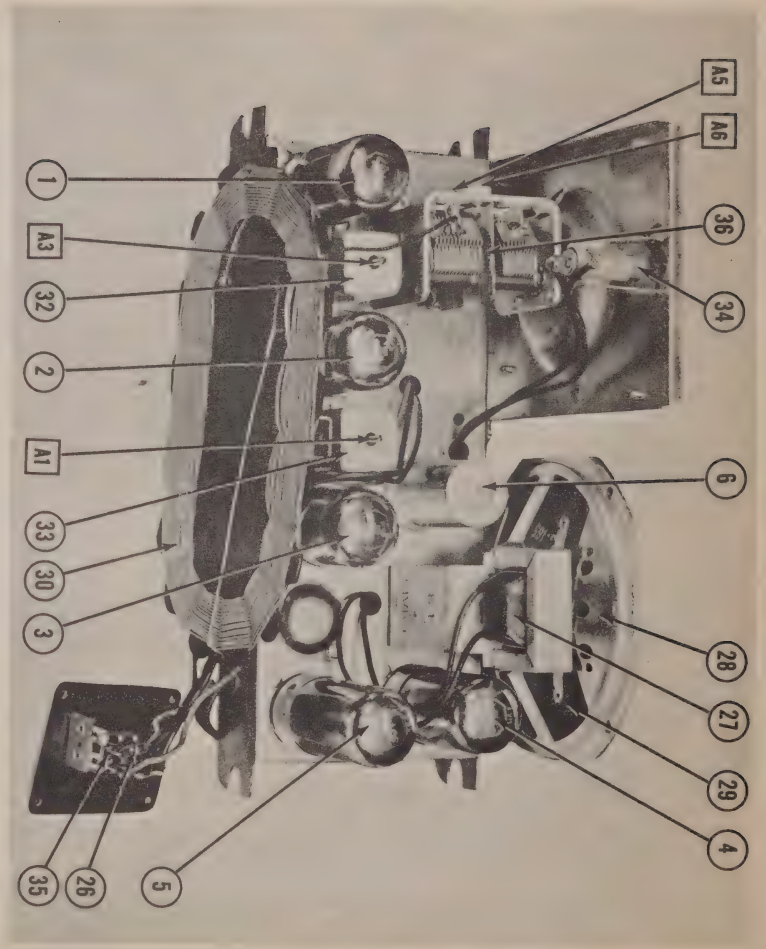
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GEN. TELEVISION PART No.	IRC PART No.	IDENTIFICATION CODES
17	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
18	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AVC Network
19	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. " "
20	6 Meg.	½		BTS-5.6 Meg.	Blue-Blk.-Grn. AF Grid
21	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. AF Plate Load
22	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
23	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
24	2000Ω	1		BTA-2200	Red-Blk.-Red Filter
25	10Ω	½		BW-½-10	Br.-Blk.-Blk. Line Dropping
26	220KΩ	½		BTS-220K	Red-Red-Yl. Series Phono.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: GEN. TELE. PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
27	2100Ω	3Ω	170Ω	.5Ω		A-3876‡	T22S45‡		‡Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			GENERAL TELEVISION PART No.	JENSEN PART No.		
28	FIELD PM	VC IMP. 3Ω	8-1	ST-107 Mod. P5-V		
29	CONE DIA. 4½"	VC DIA. 2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

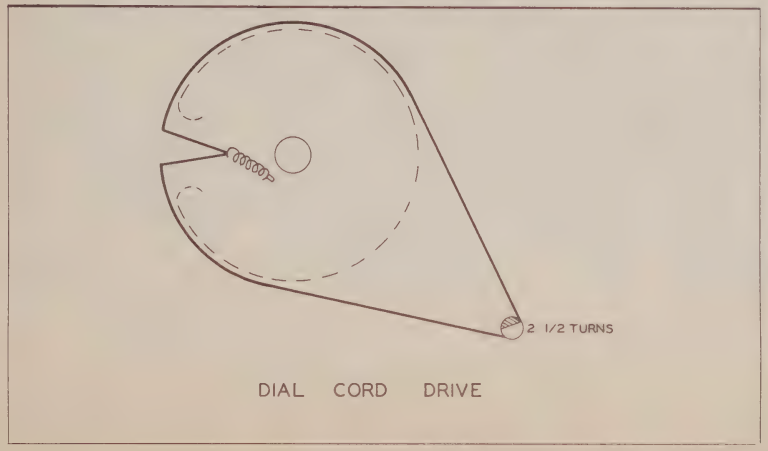
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	GEN. TELEVISION PART No.	MEISSNER PART No.	
30	Loop Ant.		1.5Ω	32.5		
31	Osc. Coil	1.5Ω	6Ω		14-1040	
32	Input IF	10Ω	10Ω		16-6668	
33	Output IF	10.5Ω	10Ω		16-6669	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					GEN. TELEVISION PART No.		
34	Bayonet	6-8	0.15	Brown			Type 47

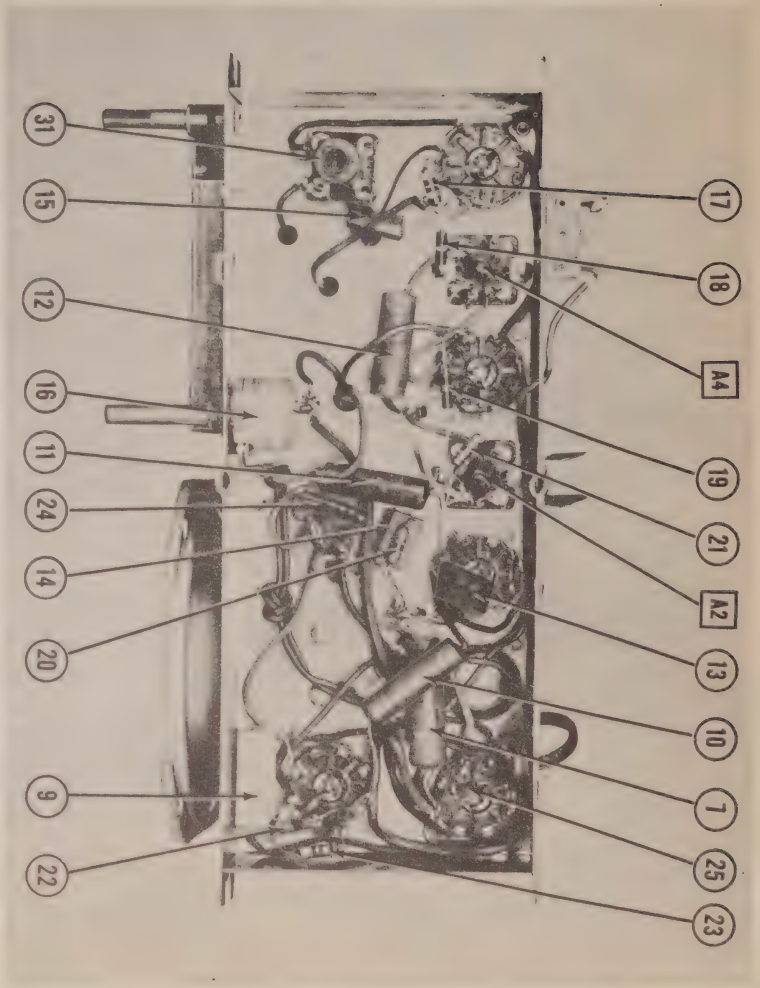
MISCELLANEOUS

ITEM No.	PART NAME	GEN. TELE. PART No.	NOTES
35	Switch		Radio-Phono.
36	2 Gang Var. Cap		(25-474 MMF, 33-191 MMF)



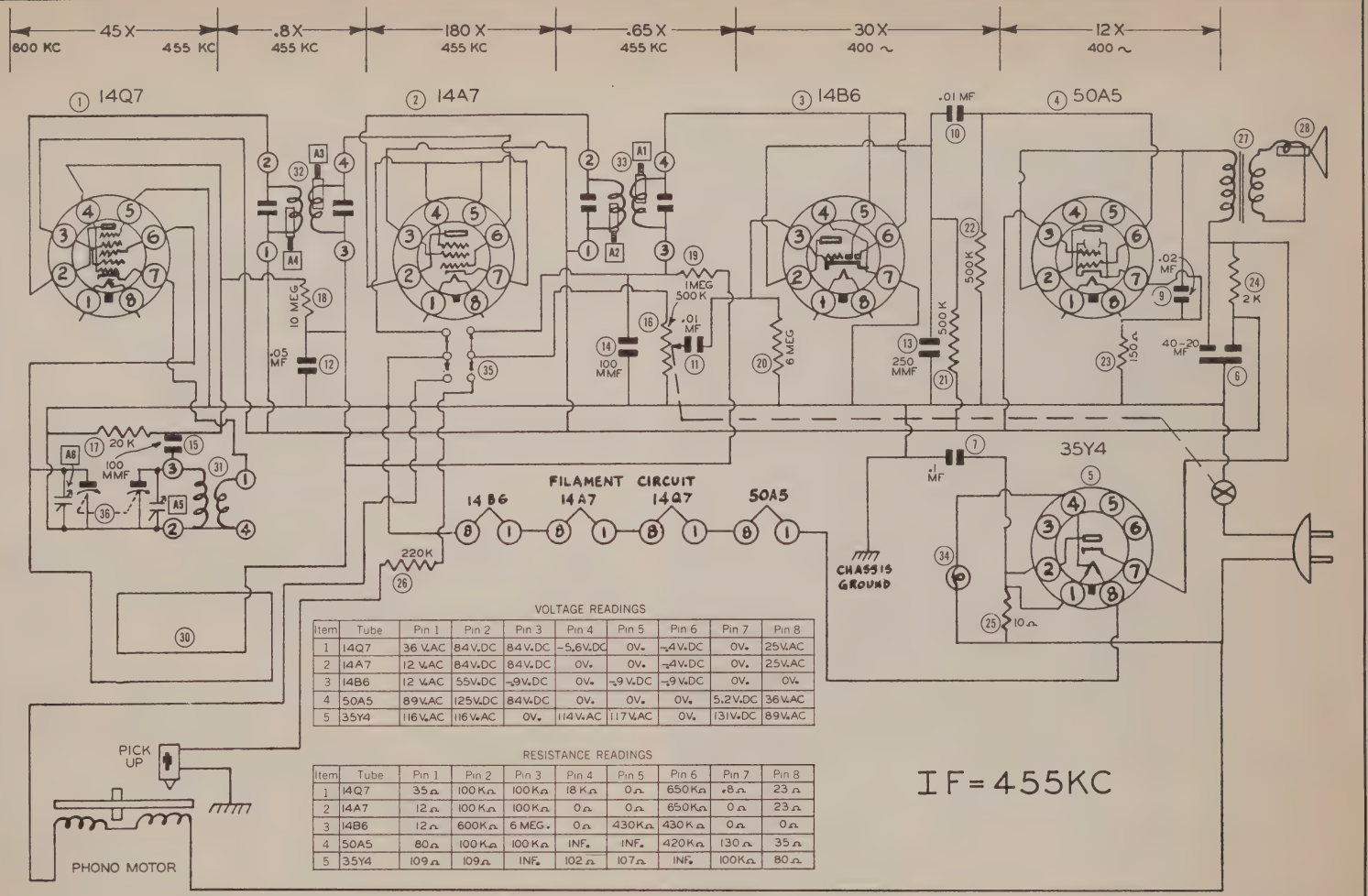
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



GENERAL TELEVISION
MODEL 22A5C

GENERAL TELEVISION
MODEL 22A5C



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	36 V.AC	84V.DC	84V.DC	−5.6V.DC	0V.	−4V.DC	0V.	25V.AC
2	14A7	12 V.AC	84V.DC	84V.DC	0V.	0V.	−4V.DC	0V.	25V.AC
3	14B6	12 V.AC	55V.DC	−9V.DC	0V.	−9 V.DC	−9 V.DC	0V.	0V.
4	50A5	89V.AC	125V.DC	84V.DC	0V.	0V.	0V.	5.2V.DC	36V.AC
5	35Y4	116V.AC	116V.AC	0V.	114V.AC	117V.AC	0V.	131V.DC	89V.AC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	35Ω	100KΩ	100KΩ	18KΩ	0Ω	650KΩ	.8Ω	23Ω
2	14A7	12Ω	100KΩ	100KΩ	0Ω	0Ω	650KΩ	0Ω	23Ω
3	14B6	12Ω	600KΩ	6 MEG.	0Ω	430KΩ	430KΩ	0Ω	0Ω
4	50A5	80Ω	100KΩ	100KΩ	INF.	INF.	420KΩ	130Ω	35Ω
5	35Y4	109Ω	109Ω	INF.	102Ω	107Ω	INF.	100KΩ	80Ω

IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-19

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

LEXINGTON MODEL 6545

TRADE NAME	Lexington, Model 6545
SUPPLIER	Bloomingdale Bros., 60th St. & Lexington Ave., New York, N.Y.
TYPE SET	AC Operated Combination Automatic Phono - Superheterodyne Receiver with Self Contained Loop Antenna
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 14B6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	540-1700KC RATING .240 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to stator of rear section of variable. Low side to B-.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
100MMFD	High side to ext ant. lead. Low side to chassis.	1720KC	"	"	A5	Adjust for maximum output.
100MMFD	"	1500KC	Tune for maximum output.	"	A6	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove the following push-on type knobs and felt washers from volume, phono-radio and tuning control.
2. Remove four Phillips head screws from chassis board. Remove chassis board from cabinet.
3. Unsolder shielded pickup lead from ground on shielded lead going to chassis.
4. Unsolder yellow lead going to black phono pickup lead on terminal strip.
5. Unsolder green lead going to green phono pickup lead on terminal strip.
6. Unsolder the two spliced phono motor leads.
7. Remove three hex screws and washers from chassis board. Remove chassis.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1947 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc."

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: LEXINGTON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8V	
3	Det.-AVC-AF	14B6	14B6	8W	
4	Power Output	50A5	50A5	6AA	
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: LEXINGTON PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	30	150	A-25.019	TA-330	PRS150-40-40	BRD3315	2N513	M-2x30-150	Filter
B	30	150							"
7	.05	400		TC-15	484-.05	DT4S5	TP426	S-4-05	Line Filter
8	.02	400		TC-12	484-.02	DT4S2	TP423	S-4-02	50A5 Plate Bypass
9	.25	200		TC-2	484-.25	DT4P25	TP430	S-4-25	Line Isolating
10	.02	400		TC-12	484-.02	DT4S2	TP423	S-4-02	Audio Coupling
11	.005	600		TC-25	684-.005	DT6D5	TP408	S-6-005	" "
12	.005	600		TC-25	684-.005	DT6D5	TP408	S-6-005	AVC Filter
13	.002	200		TC-22	484-.002	DT6D2	TP405	S-6-002	Ant. Coupling
14	250	500		1FM-325	1468-.00025	5W5T25	MC240	M0.5-325	Audio Plate Bypass
15	250	500		1FM-325	1468-.00025	5W5T25	MC240	M0.5-325	RF Bypass Diode
16	250	500		1FM-325	1468-.00025	5W5T25	MC240	M0.5-325	Phono Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: LEXINGTON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
17A	500KΩ	1	A-9.066	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 17A per instructions.
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

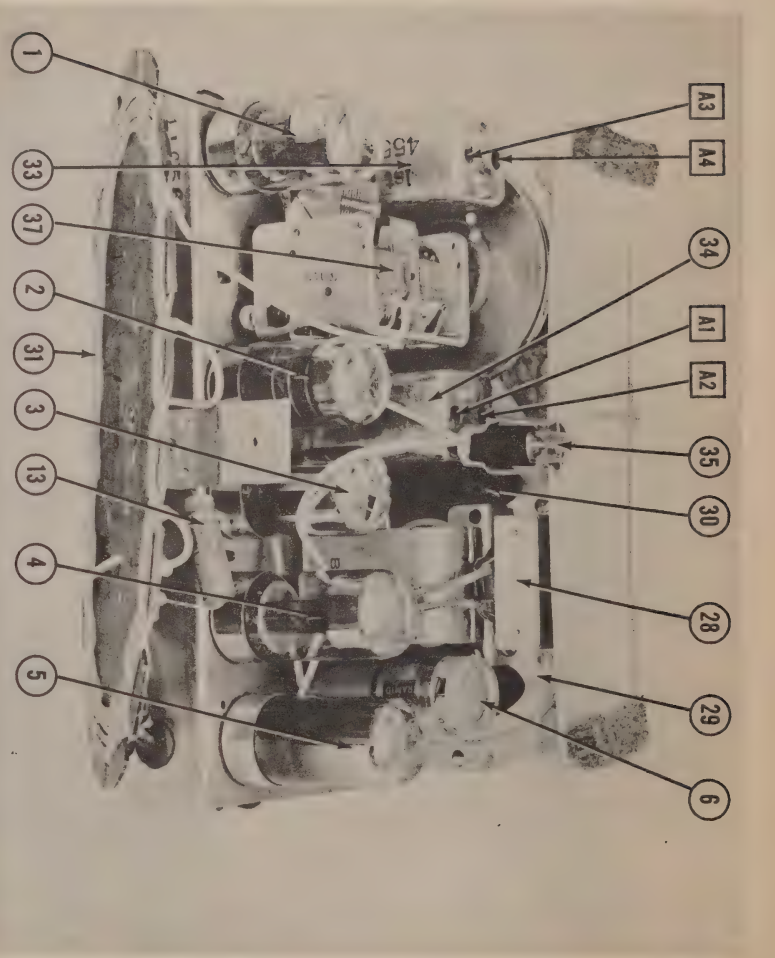
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: LEXINGTON PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
18	22KΩ	1/4		BTS-22K	Red-Red-Or. Osc. Grid
19	10 Meg.	1/4		BTS-10 Meg.	Br.-Blk.-Blue AVC Network
20	3.3 Meg.	1/4		BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
21	15 Meg.	1/4		BTS-15 Meg.	Br.-Grn.-Blue 1st AF Grid
22	470KΩ	1/4		BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
23	470KΩ	1/4		BTS-470K	Yl.-Vi.-Yl. Output Grid
24	150Ω	1/2		BW-½-150	Br.-Grn.-Br. Output Cathode
25	220KΩ	1/4		BTS-220K	Red-Red-Yl. Line Isolating
26	1000Ω	2		BT-2-1000	Br.-Blk.-Red Filter - See Note 1
27	2.2 Meg.	1/4		BTS-2.2 Meg.	Red-Red-Grn. Series Phono

Note 1 - Some models use two 470Ω 1 Watt resistors in series.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: LEXINGTON PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
28	1700Ω	3.3Ω	155Ω	.5Ω	Part of B-11.037	A-3876	T22S45		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: LEXINGTON PART No.	JENSEN PART No.		INSTALLATION NOTES
29	FIELD FM	VC IMP. 3.3Ω	B-11037	ST-105† Mod. P5-X		†Case must be drilled and tapped
30	CONE DIA. 4-5/8"	VC DIA. 9/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

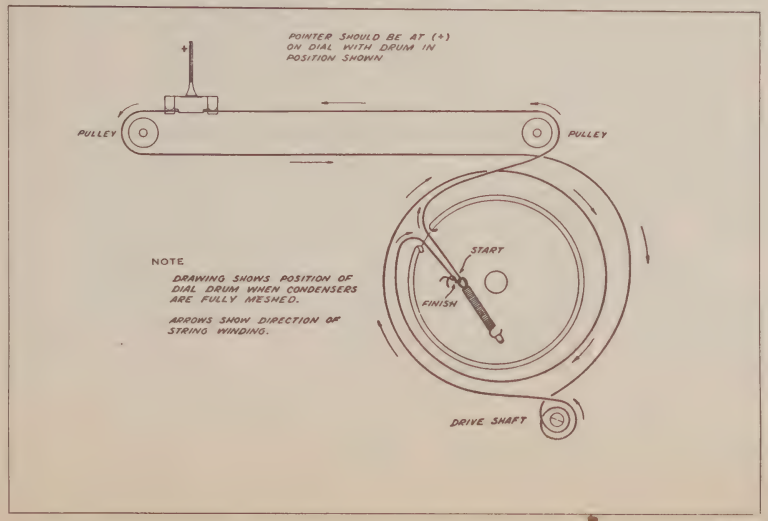
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: LEXINGTON PART No.	MEISSNER PART No.	
31	Loop Ant.	0Ω	1.3Ω		14-1040	Add 50 MFD. cap. from grid to high side tuning cap.
32	Osc. Coil	.8Ω	6.2Ω		16-6666	
33	Input IF	21.5Ω	21Ω		16-6667	
34	Output IF	14.2Ω	14.5Ω			

DIAL LIGHT

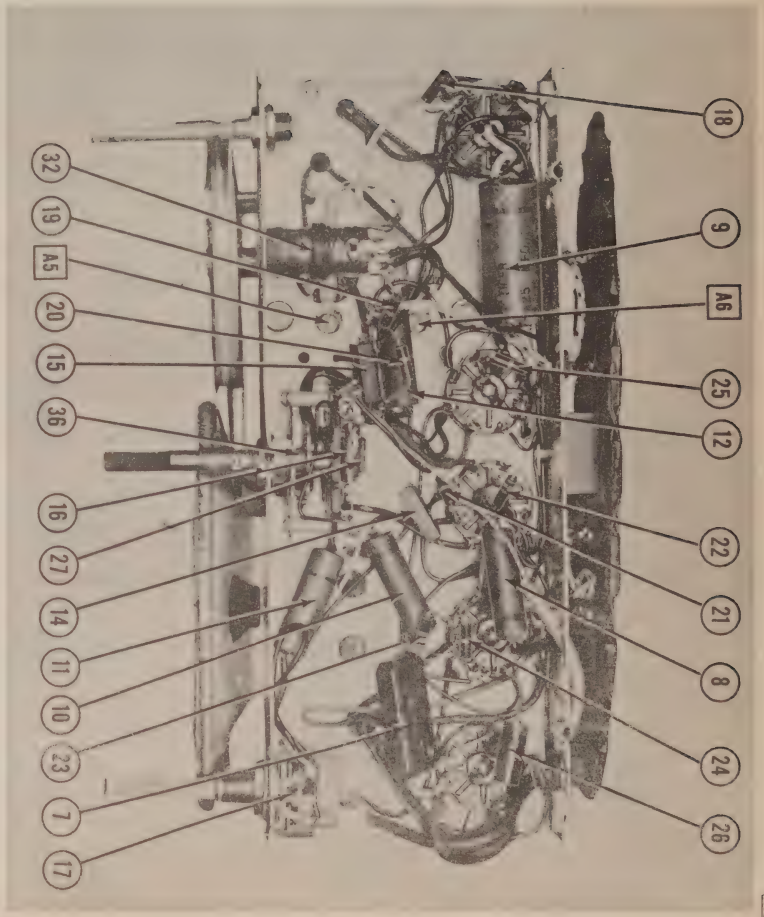
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: LEXINGTON PART No.		INSTALLATION NOTES
35	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

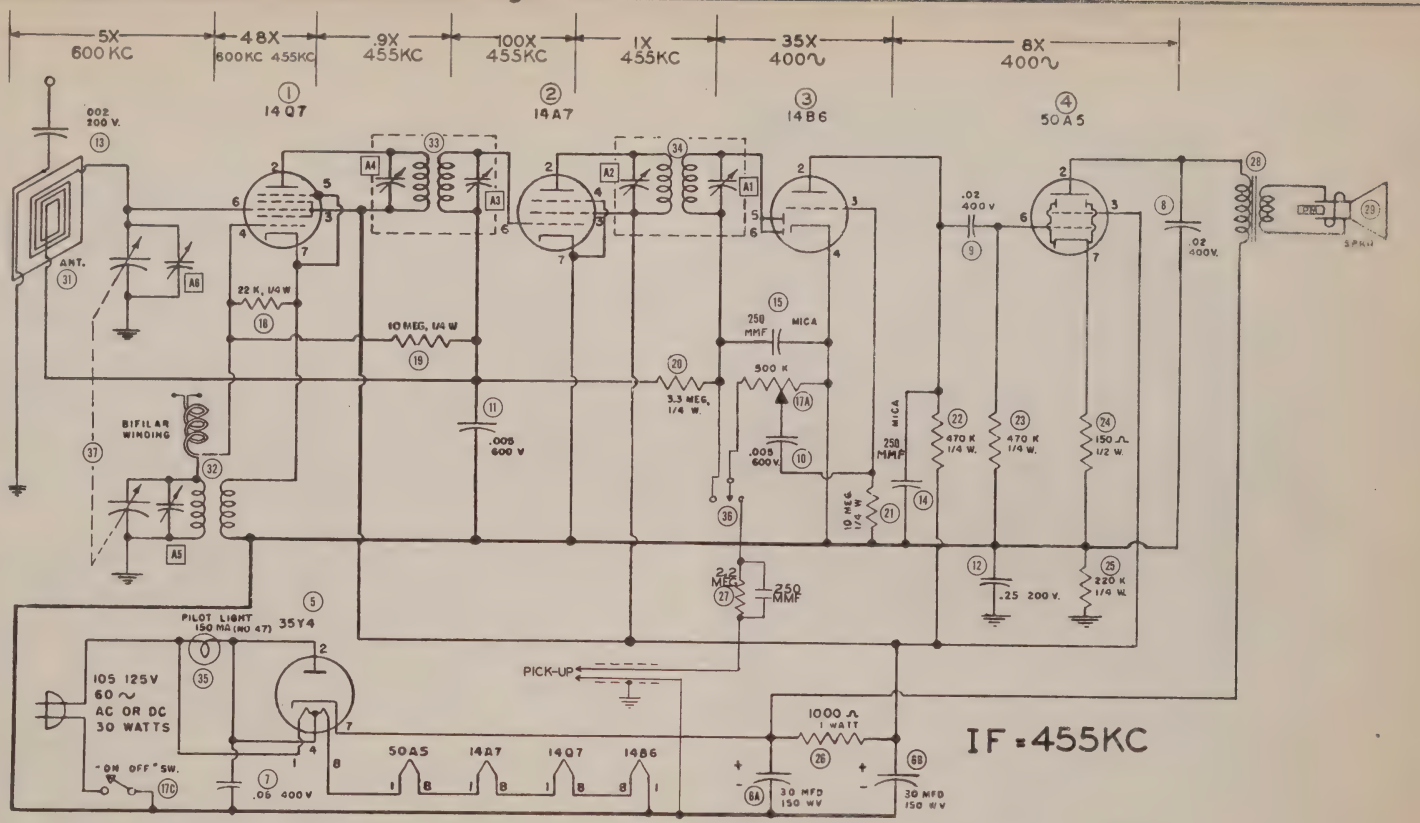
ITEM No.	PART NAME	LEXINGTON PART No.	NOTES
36	Switch		
37	2 Gang Var.Cap.	C6.032	Radio-Phono (20-452 MMF, 18-162 MMF) Trimmers Included


POINTER SHOULD BE AT (+) ON DIAL WITH DRUM IN POSITION SHOWN
PULLEY
PULLEY
START
FINISH
DRIVE SHAFT
NOTE
DRAWING SHOWS POSITION OF DIAL DRUM WHEN CONDENSERS ARE FULLY MESHED.
ARROWS SHOW DIRECTION OF STRING WINDING.

CHASSIS—BOTTOM VIEW



LEXINGTON MODEL 6545



IF = 455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	25.5VAC	93V. DC	93V. DC	-4.8V.DC	0V.	-.15V. DC	0V.	13V.AC
2	14A7	38V.A C	93V. DC	93V. DC	0V.	0V.	-.15V. DC	0V.	25.5VAC
3	14B6	0V.	60V. DC	-.45V.DC	0V.	-.7 V.DC	-7V.DC	0V.	13V.A C
4	50A5	87V.A C	107V.DC	93V.DC	0V.	0V.	0V.	5.8V.DC	38V.AC
5	35Y4	117V.AC	113V.AC	0V.	113V.AC	103V.DC	0V.	113V.DC	87VAC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24.5 Ω	231 KΩ	231 KΩ	19.8KΩ	.5Ω	2.7MEG	.5Ω	12.5 Ω
2	14A7	39Ω	231 KΩ	231 KΩ	0Ω	222KΩ	2.7MEG	0Ω	24.5 Ω
3	14B6	0Ω	700KΩ	12 MEG	0Ω	470KΩ	470KΩ	I N F.	12.5 Ω
4	50A5	87Ω	230KΩ	231 KΩ	0Ω	0Ω	450KΩ	130 Ω	39 Ω
5	35Y4	112 Ω	110 Ω	I N F.	110 Ω	INF.	I N F.	230KΩ	87 Ω

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

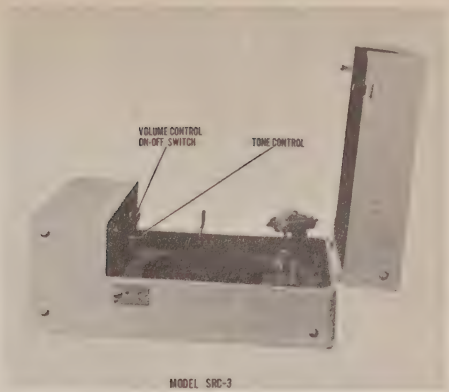
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-20

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

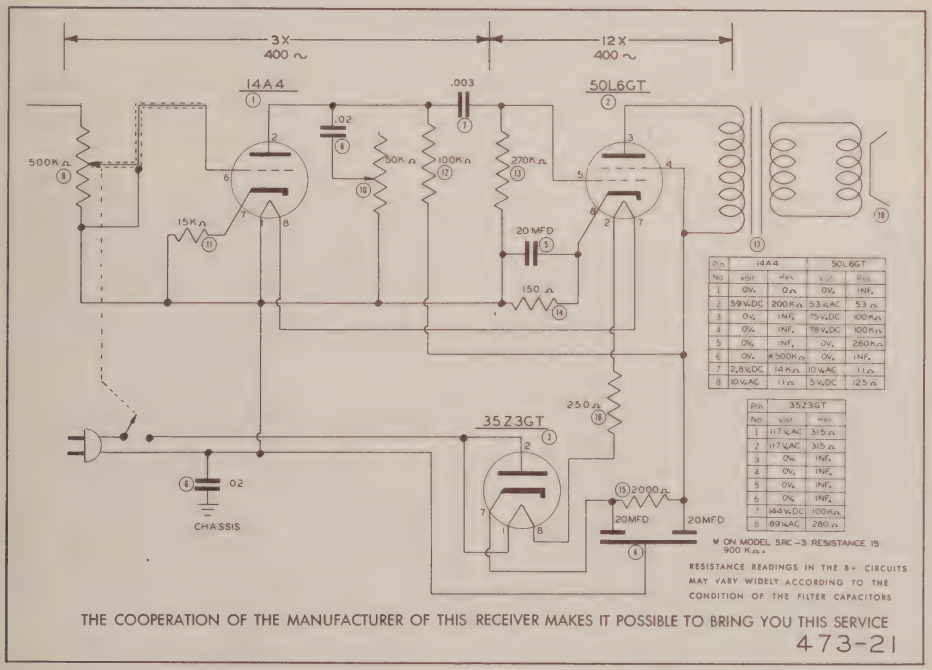
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MODEL 101



MODEL SRC-3

TRADE NAME	Musitron, Models Piccolo 101, SRC-3
MANUFACTURER	The Musitron Co., 223 W. Erie St., Chicago, Ill.
TYPE SET	AC Operated Portable Phonograph with 3-Tube Amplifier and Speaker
TUBES (THREE)	Types, 14A4 AF Amp., 50L6GT Power Output, 35Z3 Rectifier
POWER SUPPLY	110-120 Volts AC RATING .195 Amp. @ 117 Volts AC



Pin No	14A4 Volt	14A4 Res	50L6GT Volt	50L6GT Res
1	0V.	0 Ω	0V.	INF.
2	59 V.DC	200 KΩ	53 V.AC	53 Ω
3	0V.	INF.	75 V.DC	100 KΩ
4	0V.	INF.	78 V.DC	100 KΩ
5	0V.	INF.	0V.	260 KΩ
6	0V.	*500 KΩ	0V.	INF.
7	2.8 V.DC	14 KΩ	10 V.AC	1 Ω
8	10 V.AC	1 Ω	5 V.DC	125 Ω

Pin No	35Z3GT Volt	35Z3GT Res
1	117 V.AC	315 Ω
2	117 V.AC	315 Ω
3	0V.	INF.
4	0V.	INF.
5	0V.	INF.
6	0V.	INF.
7	144 V.DC	100 KΩ
8	89 V.AC	280 Ω

* ON MODEL SRC-3 RESISTANCE IS 900 KΩ.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

473-21

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied.

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MUSITRON
MODELS PICCOLO 101, SRC-3

MUSITRON
MODELS PICCOLO 101, SRC-3

PARTS LIST AND DESCRIPTIONS (Continued)

TUBES

ITEM No.	USE	REPLACEMENT DATA: MUSITRON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	AF Amp.	14A4	14A4	5AC	
2	Power Output	50L6	50L6	7AC	
3	Rectifier	35Z3	35Z3	4Z	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MUSITRON PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	20	150		TA-220	PRSA150-20-20	BRL2215	2N509	DSB-2x20-150	Filter
B	20	150							"
5	20	25		TA-25	PRS25-25	BR202A	TC26	M-25-25	Cath. Bypass
6	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Line Isolation
7	.003	600		TC-23	684-003	DT6D3	TP406	S-6-003	Audio Coupling
8	.02	600		TC-12	684-02	DT6S2	TP412	S-6-02	Tone Compensation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MUSITRON PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
9A	500KΩ	1		MR60	D11-133	M-58-S	Volume Control-Used in Model 101
B	Shaft			Not Req.	A	Not Req.	Attach to 9A per instructions
C	Switch			M26	41	SW-A	" " " " "
9A	1 Meg.	1		UM159	D11-137	M-61-S	Volume Control-Used in Model SRC-3
B	Shaft			Not Req.	A	Not Req.	Attach to 9A per instructions
10A	50KΩ	1		MR33	D13-123	M-46-Z	Tone Control-Used in Model 101
B	Shaft			Not Req.	A	Not Req.	Attach to 10A per instructions
10A	100KΩ	1		MR41	D11-128	M-49-S	Tone Control-Used in Model SRC-3
B	Shaft			Not Req.	A	Not Req.	Attach to 10A per instructions
C	Switch			M26	41	SW-A	" " " "

Note - Model 101 has the off-on switch on the volume control and Model SRC-3 has the off-on switch on the tone control.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MUSITRON PART No.	IRC PART No.	IDENTIFICATION CODES
11	15KΩ	½		BTS-15K	Br.-Grn.-Or. AF Cathode
12	100KΩ	½		BTS-100K	Br.-Blk.-Y1. AF Plate Load
13	270KΩ	½		BTS-270K	Red-V1.-Y1. Output Grid
14	150Ω	5		AB-150	Output Cathode
15	2000Ω	10		AB-2000	Filter
16	250Ω	10		AB-250	Line Dropping

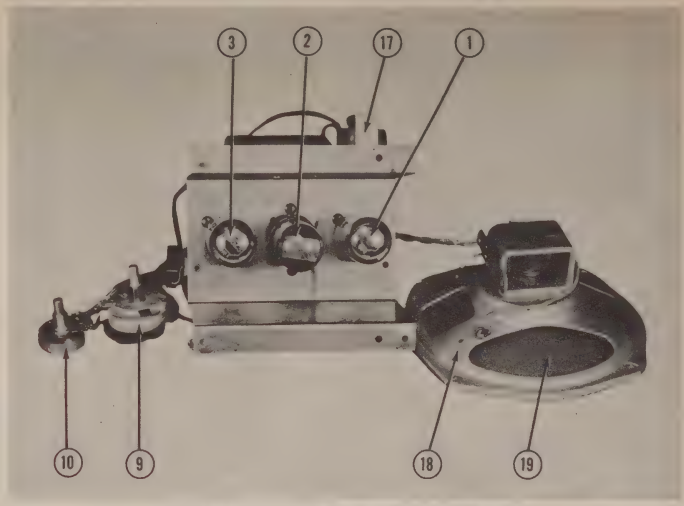
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MUSITRON PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
17A	1800Ω	3.2Ω	110Ω	.65Ω		A-3876	T22545		Used in Model Piccolo 101
B	1900Ω	3.2Ω	120Ω	.6Ω		A-3876	T22545		Used in Model SRC-3

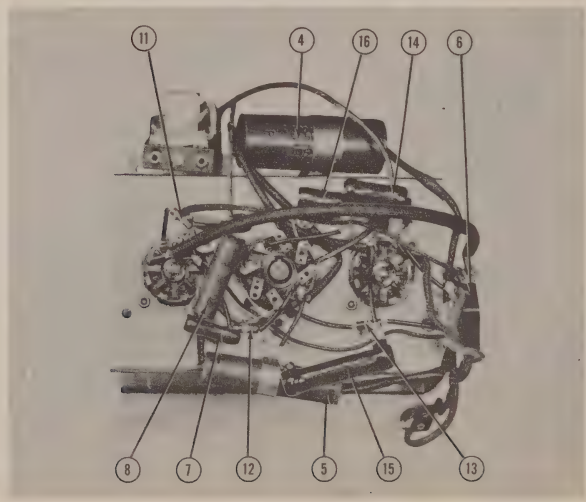
SPEAKER

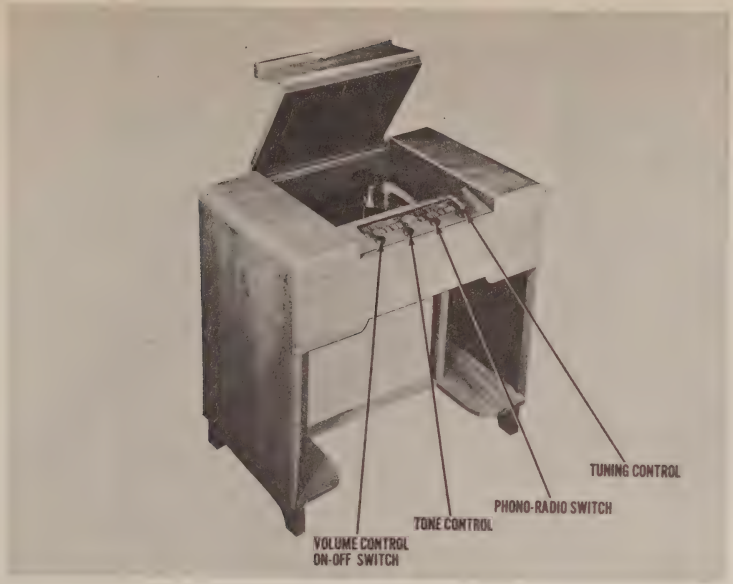
ITEM No.	RATINGS		REPLACEMENT DATA: MUSITRON PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-113		Used in Model Piccolo 101
18A	PM	3.0Ω		Mod. P4-X		
	CONE DIA.	VC DIA.				
19A	4"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		
	FIELD	VC IMP.		ST-10c		Used in Model SRC-13
18B	PM	3.2Ω		Mod. P6-X		
	CONE DIA.	VC DIA.				
19B	6"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





PACKARD-BELL MODEL 662

TRADE NAME	Packard-Bell, Model 662
MANUFACTURER	Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, Calif.
TYPE SET	AC Operated Radio-Phonograph Combination Superheterodyne Receiver-Self Contained Loop Ant.
TUBES (SIX)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1740KC RATING .430 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS

To adjust pointer turn variable fully closed and set pointer to last reference mark at low freq. end of dial. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD.	High side to stator of front section of variable. Low side to chassis.	455KC	Variable fully closed.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output.
	Loop	1740KC	Variable fully open.	"	A5	Connect output of signal generator to a few turns of wire and radiate signal into receiver loop. Adjust for maximum output.
	"	600KC	Tune for maximum output.	"	A6	Rock variable and adjust for maximum output.
	"	1500KC	"	"	A7,A8	Adjust for maximum output. Repeat last three steps until no further improvement can be made.

DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs.
2. Remove four wood screws from the back receiver plate and left plate from cabinet.
3. Disconnect phono-motor and phono pick-up plug from chassis.
4. Disconnect speaker plug from one end of chassis and antenna loop from opposite end.
5. Remove the two machine screws from the receiver chassis board.
6. Pull line cord through round hole in chassis board.
7. Remove the chassis from the cabinet.
8. Remove four wood screws and washers holding speaker to cabinet. Remove speaker.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	Det.-AVC-AF	6SQ7	6SQ7	8Q	
5	Power Output	6V6GT	6V6GT	7AC	
6	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PACKARD-BELL PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7	20	450	24001-3	UT-20	PRS450-20	BR2045	TC75	M-20-450	Filter
8	20	350	24003	UT-203	PRS450-20	BR2045	TC65	M-20-350	"
9	.005	600	23004	TC-25	684-005	DT6D5	TP408	S-6-005	Output Plate Bypass
10	.02	600	23007	TC-12	684-02	DT6S2	TP423	S-6-02	Audio Coupling
11	.005	600	23004	TC-25	684-005	DT6D5	TP408	S-6-005	" "
12	.05	400	23009	TC-15	484-05	DT4S5	TP426	S-4-05	Screen Bypass
13	.05	400	23009	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
14	.05	400	23009	TC-15	484-05	DT4S5	TP426	S-4-05	RF Bypass Pwr. Supp.
15	470	500	23229	1FM-35	1468-0005	SW5T5	MC245	MO.5-35	Tone Compensation
16	47	500	23225	1FM-45	1468-00005	SW5Q5	MC225	MO.5-45	Osc. Grid Capacitor
17	220	500	23228	1FM-32	1468-0002	SW5T2	MC237	MO.5-32	RF Coupling
18	47	500	23225	1FM-45	1468-00005	SW5Q5	MC225	MO.5-45	RF Pri. Shunt
19	220	500	23228	1FM-32	1468-0002	SW5T2	MC237	MO.5-32	RF Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20A	1 Meg.	1	25010b	TM240	D13-137X		Volume Control
B	Shaft		Not Req.	Not Req.	A		Attach to 20A per instructions
C	Switch		" "	M26	41		" " " " "
21A	5 Meg.	1	25506B	MR57		M-69-Z	Tone Control
B	Shaft		Not Req.	Not Req.		Not Req.	Attach to 21A per instructions

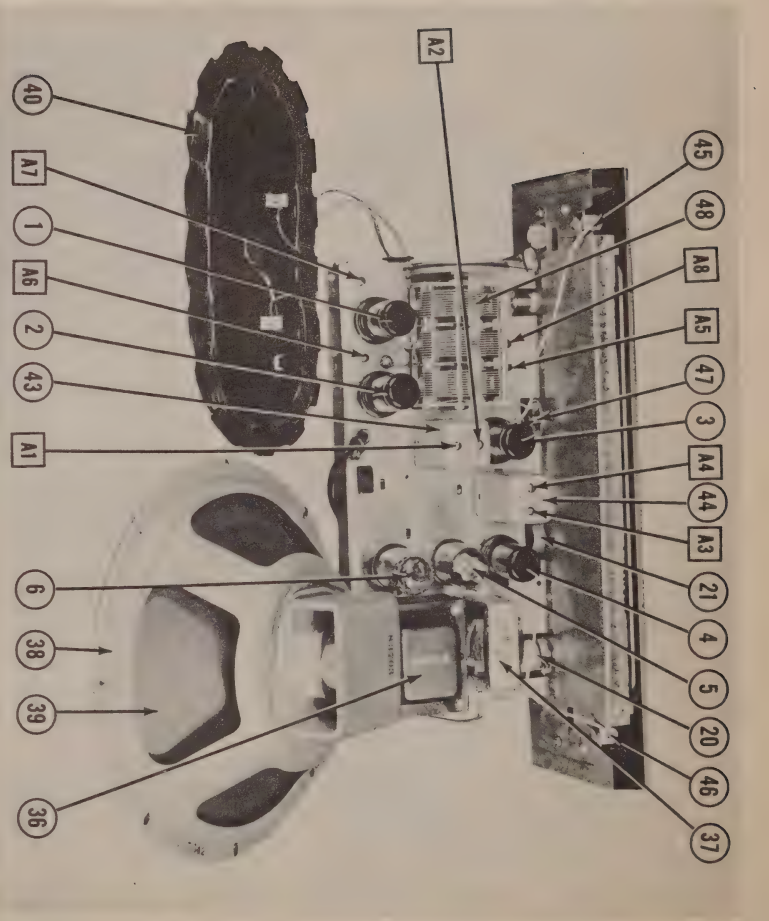
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	IRC PART No.	IDENTIFICATION CODES
22	2.2 Meg.	½	73055	BTS-2.2 Meg.	Red-Red-Grn. RF Grid
23	39Ω	½	73006	BW-½-39	Or.-White-Blk. RF Cathode
24	2.2 Meg.	½	73055	BTS-2.2 Meg.	Red-Red-Grn. Converter Grid
25	22KΩ	½	73041	BTS-22K	Red-Red-Or. Oscillator Grid
26	390Ω	½	73020	BW-½-390	Or.-White-Br. IF Cathode
27	1 Meg.	½	73053	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
28	39Ω	½	73008	BW-½-39	Or.-White-Blk. AF Cathode
29	4.7 Meg.	½	73057	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
30	220KΩ	½	73049	BTS-220K	Red-Red-Yl. AF Plate Load
31	470K	½	73051	BTS-470K	Yl.-Vi.-Yl. Output Grid
32	560Ω	½	73022	BTS-560	Grn.-Blue-Br. Feedback
33	10KΩ	2	73125	BT-2-10K	Br.-Blk.-Or. Voltage Dropping
34	2000Ω	2	72214	BT-2-2200	Red-Blk.-Red Filter
35	150Ω	1	73061	BW-1-150	Br.-Grn.-Br. Bias

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: PACKARD-BELL PART No.	STANCOR PART No.	THORDARSON PART No.	INSTALLATION NOTES
36	117V AC @ .43A	540V CT @ .066A	5.0V AC @ 1.8A	6.3V AC @ 2.0A	69010	P-8119*	T22R01	*Add resistor to reduce plate voltage.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA PACKARD-BELL PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.	REPLACEMENT DATA	INSTALLATION NOTES
37	8500Ω	4.1Ω	77Ω	.7Ω	86406	A-3873†	T-2847†		†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA PACKARD-BELL PART No.	REPLACEMENT DATA JENSEN PART No.	REPLACEMENT DATA	INSTALLATION NOTES
	FIELD	VC IMP.				
38	PM	4.1Ω	83703	ST-119# Mod. P10-T		#Replace output transformer to match 8Ω voice coil.
	CONE DIA.	VC DIA.				
39	9½"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

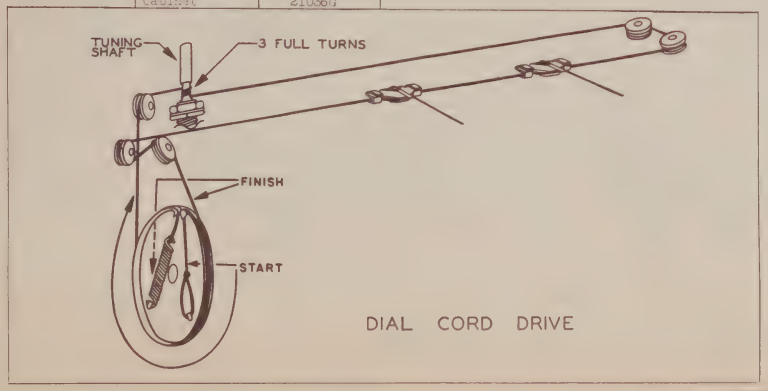
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PACKARD-BELL PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
40	Loop Ant.	.3Ω	.6Ω	29310A		
41	Rf Coil	5Ω	3Ω	29102A	14-1027	
42	Osc. Coil	1Ω	5.6Ω	29206A	14-1040	
43	Input IF	17Ω	16.5Ω	26004D	16-6658	
44	Output IF	22Ω	22Ω	29007	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA PACKARD-BELL PART No.	REPLACEMENT DATA	INSTALLATION NOTES
45	Bayonet	6-8	0.25	Blue	84001		Type 44
46	Bayonet	6-8	0.25	"	84001		" 44

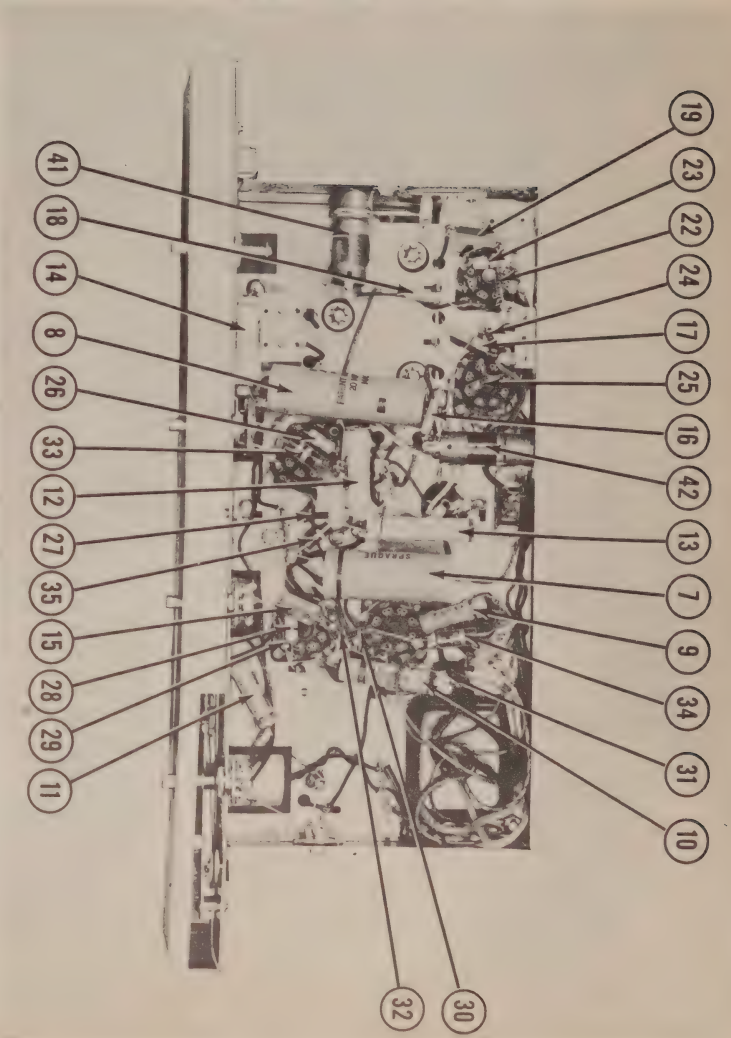
MISCELLANEOUS

ITEM No.	PART NAME	PACKARD-BELL PART No.	NOTES
47	Radio-Phono Sw.	86008	Rotary, Wafer Type
48	3 Gang Var. Cap	[illegible]	(12-471 MMF, 12-471 MMF, 12-471MMF)
	Dial Scale	3[illegible]4A	
	Record Changer	58008	
	Cabinet	210366	

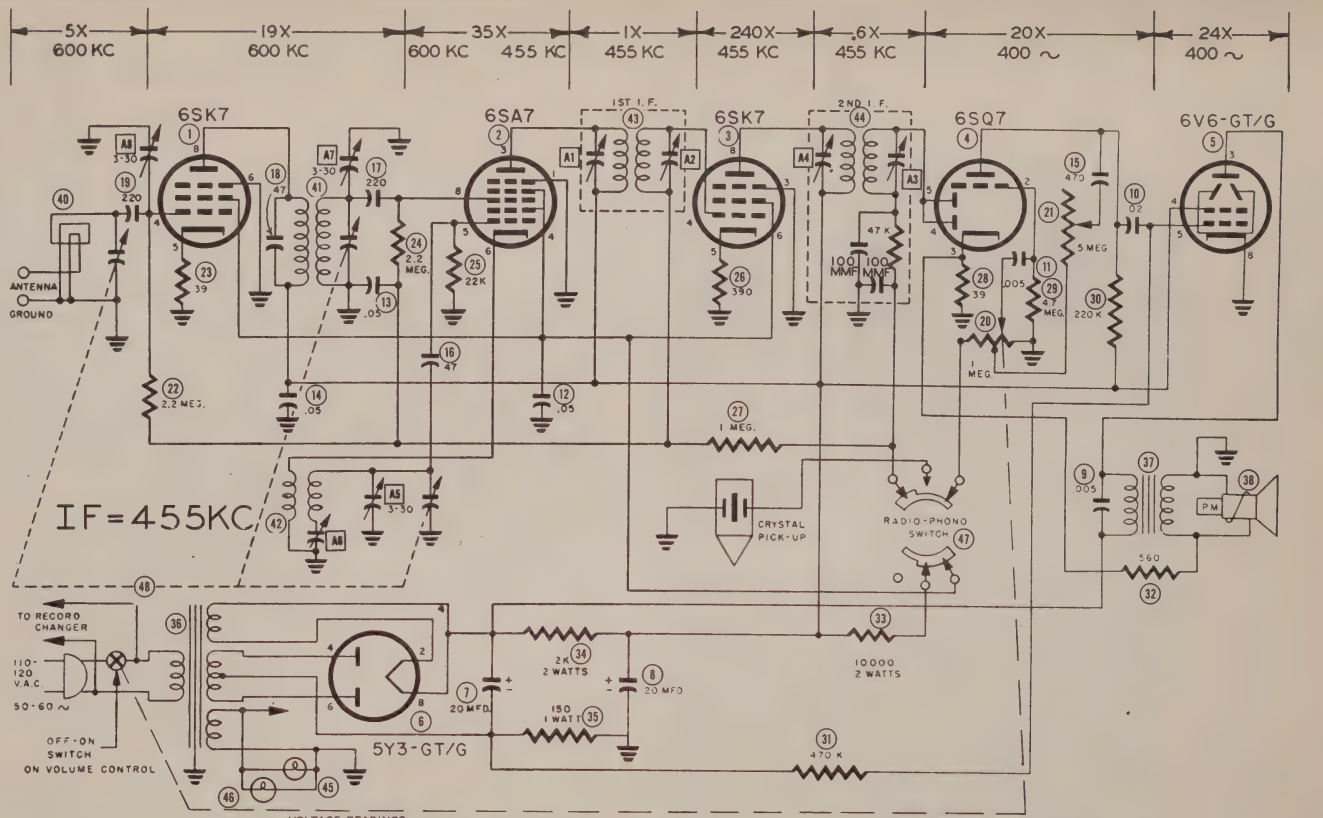


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



PACKARD-BELL MODEL 852



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	0V.	0V.	0V.	-.5 V.DC	86 V.DC	5.9 V.AC	197 V.DC
2	6SA7	0V.	5.9 V.AC	197 V.DC	86 V.DC	-5 V.DC	0V.	0V.	-3 V.DC
3	6SK7	0V.	5.9 V.AC	0V.	-1 V.DC	2.5 V.DC	86 V.DC	0V.	192 V.DC
4	6SQ7	0V.	-6 V.DC	0V.	-.5 V.DC	-.5 V.DC	93 V.DC	5.9 V.AC	0V.
5	6V6GT	0V.	0V.	255 V.DC	197 V.DC	-1.5 V.DC	0V.	5.9 V.DC	0V.
6	5Y3GT	0V.	280 V.DC	-10.5 V.DC	230 V.AC	0V.	225 V.AC	280 V.DC	280 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0Ω	0Ω	0Ω	3.2 MEG.	36Ω	310 KΩ	.1Ω	300 KΩ
2	6SA7	0Ω	.1Ω	300 KΩ	310 KΩ	19 KΩ	.8Ω	0Ω	2.5 MEG.
3	6SK7	0Ω	.1Ω	0Ω	1.5 MEG.	350Ω	310 KΩ	0Ω	300 KΩ
4	6SQ7	0Ω	5 MEG.	32Ω	790 KΩ	790 KΩ	520 KΩ	.1Ω	0Ω
5	6V6GT	0Ω	0Ω	300 KΩ	300 KΩ	470 KΩ	.3Ω	.1Ω	0Ω
6	5Y3GT	INF.	300 KΩ	130Ω	270Ω	INF.	270Ω	300 KΩ	300 KΩ

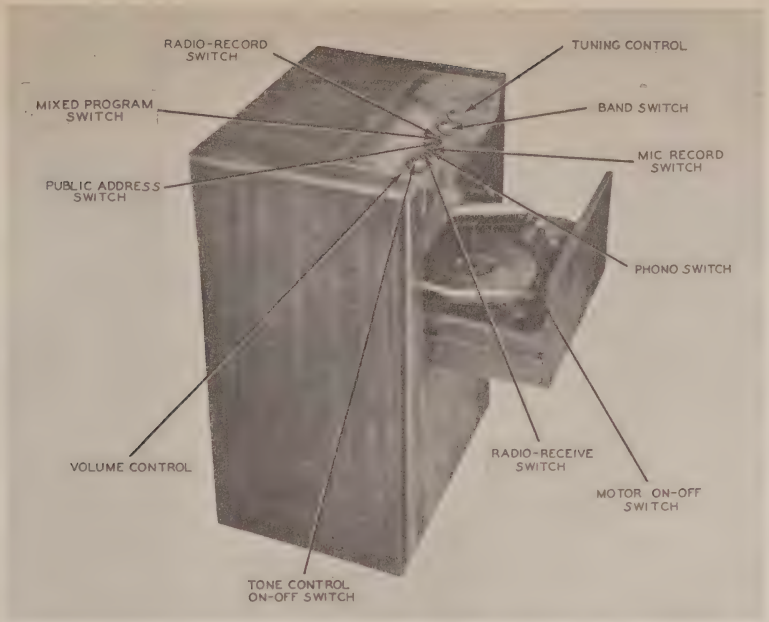
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-22

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



PACKARD-BELL MODEL 1054-B

TRADE NAME	Packard-Bell, Model 1054-B
MANUFACTURER	Packard-Bell Co., 3443 Wilshire Blvd., Los Angeles, Calif.
TYPE SET	AC Operated Phono - Recorder - PA System - 2 Band Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (TEN)	Types, 6SK7 RF Amp., 6SA7 Converter, 6SK7 IF Amp., 6SF7 2nd Det.-Exp.-Amp., 6H6 Exp. Rect. & Delayed Audio AVC, 6SQ7 Mic. Amp., 6SF7 1st AF, 6H6 Compression Rect., 6V6GT Power Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .570 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1740KC — **SHORT WAVE** 6.0-18.0MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn variable fully closed and set pointer at last reference mark at left end of dial. Set volume control at maximum volume and output from signal generator no higher than is necessary to obtain output reading. For alignment of the r-f sections connect the output of the signal generator to two turns of wire approximately 12 inches in diameter. Place in line with and about two feet from the receiver loop. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.01 MFD	High side to pin #8 of 6SA7. Low side to chassis.	455KC	BC	540 KC	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
	Loop	1750KC	"	1750 KC (Variable fully open)	"	A5	" " " "
	"	600KC	"	600 KC	"	A6	" " " "
	"	1500KC	"	Tune for maximum output.	"	A7,A8	" " " "
Repeat last three steps.							
	Loop	18.0MC	SW	18.0 MC	"	A9	" " " "
	"	15.0MC	"	Tune for maximum output.	"	A10, A11	Rock variable and adjust for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PACKARD-BELL MODEL 1054-B

PACKARD-BELL MODEL 1054-B

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PACKARD-BELL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6SK7	6SK7	8N	
2	Converter	6SA7	6SA7	8R	
3	IF Amp.	6SK7	6SK7	8N	
4	2nd Det.-Exp. Amp.	6SF7	6SF7	7AZ	
5	Exp. Rect.-Delayed Audio AVC	6H6	6H6	7Q	
6	Mic. Amp.	6SQ7	6SQ7	8Q	
7	1st AF	6SF7	6SF7	7AZ	
8	Compression Rect.	6H6	6H6	7Q	
9	Power Output	6V6GT	6V6GT	7AC	
10	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

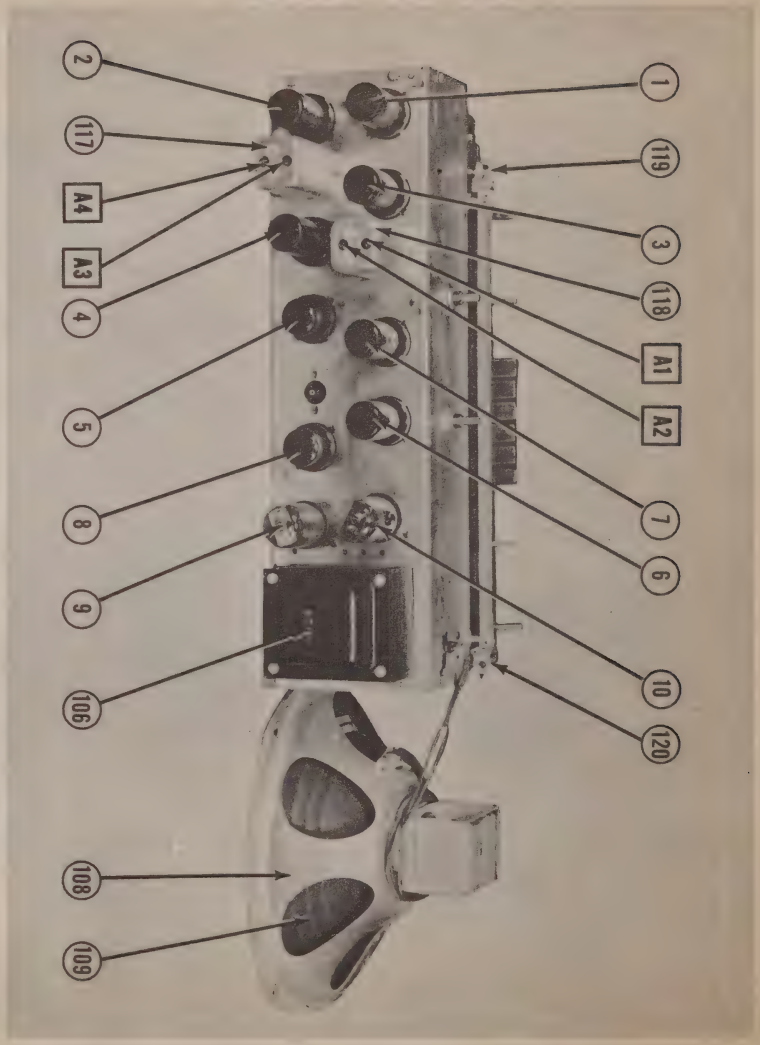
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PACKARD-BELL PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
11	20	450	24001	UT-20	PRS450-20	BR2045	TC75	M-20-450	Filter
12	20	450	24001	UT-20	PRS450-20	BR2045	TC75	M-20-450	"
13	10	450	24002	UT-12	PRS450-10	BR1045	TC72	M-10-450	"
14	10	450	24002	UT-12	PRS450-10	BR1045	TC72	M-10-450	"
15	25	25	24006	TA-25	PRS25-25	BR252A	TC26	M-25-25	1st AF Cath. Bypass
16A	.006	600	23901	TC-26	684-006	DT6D6	TP409	S-6-006	Line Bypass
B	.006	600	23901	TC-26	684-006	DT6D6	TP409	S-6-006	" "
17	.01	600	23006	TC-11	684-01	DT6S1	TP410	S-6-01	Tone Compensation
18	.003	600	23016	TC-23	684-003	DT6D3	TP406	S-6-003	" "
19	.02	600	23007	TC-12	684-02	DT6S2	TP412	S-6-02	Audio Coupling
20	.2	200	23018	TC-2	484-.2	DT4P2	TP429	S-4-2	Bias Filter
21	.02	600	23007	TC-12	684-02	DT6S2	TP412	S-6-02	Audio Coupling
22	.002	600	23002	TC-22	684-002	DT6D2	TP405	S-6-002	Output Plate Bypass
23	.05	200	23017	TC-15	484-05	DT4S5	TP426	S-4-05	Comp. Filter
24	.001	600	23001	TC-11	684-001	DT6D1	TP404	S-6-001	Comp. Coupling
25	.2	400	23020	TC-2	484-.2	DT4P2	TP428	S-4-2	1st AF Screen Bypass
26	.02	600	23007	TC-12	684-02	DT6S2	TP412	S-6-02	Audio Coupling
27	.005	600	23004	TC-25	684-005	DT6D5	TP408	S-6-005	" "
28	.1	200	23019	TC-1	484-.1	DT4P1	TP428	S-4-1	Exp.-Comp. Filter
29	.005	600	23004	TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
30	.05	200	23017	TC-15	484-05	DT4S5	TP426	S-4-05	Expansion Filter
32	.01	600	23006	TC-11	684-01	DT6S1	TP412	S-6-01	Exp. Coupling
33	.05	600	23010	TC-15	684-05	DT6S5	TP415	S-6-05	Expander Coupling
34	.05	600	23010	TC-15	684-05	DT6S5	TP415	S-6-05	6SF7 Screen Bypass
35	.005	600	23004	TC-25	684-005	DT6D5	TP408	S-6-005	Audio Coupling
36	.003	600	23016	TC-23	684-003	DT6D3	TP406	S-6-003	" "
37	.01	600	23006	TC-11	684-01	DT6S1	TP410	S-6-01	IF Plate Decoupling
38	.05	200	23017	TC-15	484-05	DT4S5	TP426	S-4-05	IF Cath. Bypass
39	.2	400	23020	TC-2	484-.2	DT4P2	TP429	S-4-2	Mic. Amp. Plate Decoup.
40	.001	600	23001	TC-21	684-001	DT6D1	TP404	S-6-001	Mic. Amp. Plate Bypass
41	.05	600	23010	TC-15	684-05	DT6S5	TP415	S-6-05	Screen Bypass
42	.05	200	23017	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
43	.01	600	23006	TC-11	684-01	DT6S1	TP410	S-6-01	RF Plate Decoupling
44	.01	600	23006	TC-11	684-01	DT6S1	TP410	S-6-01	RF Cath. Bypass
45	4000	300	23208	1FM-24	1467-004	1D5D4	MC463	MW.5-24	Tone Compensation
46	47	500	23225	1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	1st AF Plate Bypass
47	47	500	23225	1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Osc. Grid Capacitor
48	220	500	23228	1FM-32	1468-0002	5W5T2	MC237	M0.5-32	RF Coupling
49	4900	300	23207A						Fixed Padder
50	220	500	23228	1FM-32	1468-0002	5W5T2	MC237	M0.5-32	RF Coupling
51	47	500	23225	1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Fixed Trimmer

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
52A	1 Meg.	1	{25500A#}				Volume Control-Front Section
B	2 Meg.	1					" " -Center Section
C	500K2	1					" " -Rear Section

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	PACKARD-BELL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	
53A	3 Meg.	1	25002A	MR57	D13-140	M-67-Z	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 53A per instructions
C	Switch		" "	M26	41	SW-A	" " " "
54A	500KΩ	1	25800	UM156	D11-133	AM-58-S	Mixer Control
B	Shaft		Not Req.	SS12	E	KSS-3	Attach to 54A per instructions
55A	500KΩ	1	25800	UM156	D11-133	AM-58-S	Mixer Control
B	Shaft		Not Req.	SS12	E	KSS-3	Attach to 55A per instructions

#This is a 3 section volume control actuated by one shaft.

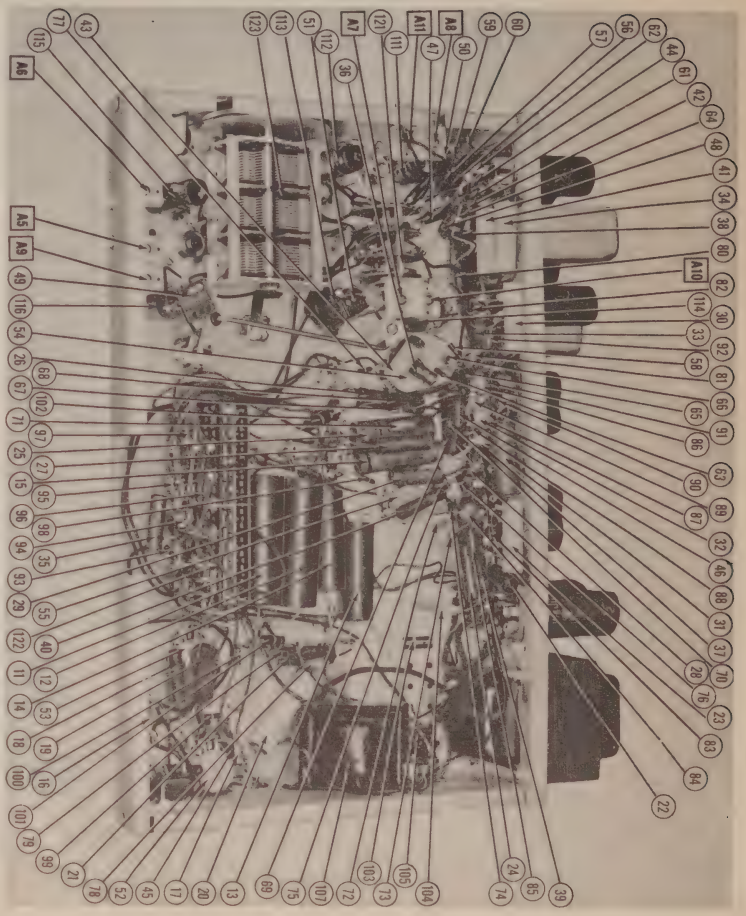
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PACKARD-BELL PART No.	IRC PART No.	
56	2.2 Meg.	½	73055	BTS-2.2 Meg.	Red-Red-Grn. RF Grid
57	220Ω	½	73017	BW-½-220	Red-Red-Br. RF Cathode
58	1200Ω	½	73026	BTS-1200	Br.-Red-Red RF Plate Decoupling
59	1 Meg.	½	73053	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
60	1 Meg.	½	73053	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
61	22KΩ	½	73041	BTS-22K	Red-Red-Or. Oscillator Grid
62	39Ω	½		BW-½-39	Or.-White-Blk. Parasitic Suppressor
63	2.2 Meg.	½	73055	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
64	5600Ω	2	73127	BT-2-5600	Grn.-Blue-Red Screen Dropping
65	220KΩ	½	73049	BTS-220K	Red-Red-Yl. Diode Load
66	27KΩ	½	73042	BTS-27K	Red-Vi.-Or. " "
67	220KΩ	½	73049	BTS-220K	Red-Red-Yl. 1st AF Plate Load
68	1.5 Meg.	½	73054	BTS-1.5 Meg.	Br.-Grn.-Grn. 1st AF Screen Dropping
69	56KΩ	1	73076	BTA-56K	Grn.-Blue-Or. Bleeder
70	4.7 Meg.	½	73057	BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
71	470KΩ	½	73051	BTS-470K	Yl.-Vi.-Yl. Exp.-Comp. Net
72	1 Meg.	½	73053	BTS-1 Meg.	Br.-Blk.-Grn. Microphone Amplifier Grid
73	2700Ω	½	73030	BTS-2700	Red-Vi.-Red Microphone Amplifier Cathode
74	10KΩ	½	73037	BTS-10K	Br.-Blk.-Or. Microphone Amplifier Cathode
75	100KΩ	½	73047	BTS-100K	Br.-Blk.-Yl. Microphone Amplifier Plate Load
76	100KΩ	½	73047	BTS-100K	Br.-Blk.-Yl. Microphone Amplifier Plate Decoupling
77	220KΩ	½	73049	BTS-220K	Red-Red-Yl. Mixer Isolation
78	470KΩ	½	73051	BTS-470K	Yl.-Vi.-Yl. Output Grid
79	220KΩ	½	73049	BTS-220K	Red-Red-Yl. Bias Net
80	220KΩ	½	73049	BTS-220K	Red-Red-Yl. Expander Amplifier Plate Load
81	470KΩ	½	73051	BTS-470K	Yl.-Vi.-Yl. Expander Amplifier Screen Dropping
82	22KΩ	½	73041	BTS-22K	Red-Red-Or. Expander Amplifier Screen Bleeder
83	220KΩ	½	73049	BTS-220K	Red-Red-Yl. Compressor Diode Load
84	470KΩ	½	73051	BTS-470K	Yl.-Vi.-Yl. Compressor Voltage Divider
85	1.5 Meg.	½	73054	BTS-1.5 Meg.	Br.-Grn.-Grn. Compressor Voltage Divider
86	470KΩ	½	73051	BTS-470K	Yl.-Vi.-Yl. Expander Amplifier Diode
87	4.7 Meg.	½	73057	BTS-4.7 Meg.	Yl.-Vi.-Grn. Expander Diode Load
88	56KΩ	1	73076	BTA-56K	Grn.-Blue-Or. Delayed Expansion Bleeder
89	560Ω	½	73022	BTS-560	Grn.-Blue-Br. " "
90	4.7 Meg.	½	73057	BTS-4.7 Meg.	Yl.-Vi.-Grn. Delayed Expansion Diode Load
91	4.7 Meg.	½	73057	BTS-4.7 Meg.	Yl.-Vi.-Grn. Expansion Network
92	4.7 Meg.	½	73057	BTS-4.7 Meg.	Yl.-Vi.-Grn. Expansion Amp. Grid
93	220Ω	½	73017	BW-½-220	Red-Red-Br. IF Cathode
94	390Ω	½	73020	BW-½-390	Or.-White-Br. Bias
95	4700Ω	½	73033	BTS-4700	Yl.-Vi.-Red Bias
96	.5Ω	1	73910	BW-1-.47	Speaker Muting
97	1000Ω	½	73025	BTS-1000	Br.-Blk.-Red Bias
98	220KΩ	½	73049	BTS-220K	Red-Red-Yl. Mixer Isolation
99	15KΩ	½	73039	BTS-15K	Br.-Grn.-Or. Tone Compensation
100	56KΩ	½	73060	BTS-56K	Grn.-Blue-Or. Tone Compensation
101	180Ω	2	73077	BW-2-180	Br.-Gray-Br. Bias
102	1500Ω	2	73126	BT-2-1500	Br.-Grn.-Red Filter
103	1000Ω	2	73120	BT-2-1000	Br.-Blk.-Red "
104	2500Ω	5	73907	AB-2500	"
105	15Ω	1	73903	BW-1-15	Cutter Shunt

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	PACKARD-BELL PART No.	STANCOR PART No.	THORDAR'N PART No.	
106	117V AC @ .65A	700V CT @ .078A	5.2VAC @ 1.9A	6.3V AC @ 3.6A	99006	P-6012	T2ZA04	

CHASSIS—BOTTOM VIEW



NOTE: VOLTAGE & RESISTANCE READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

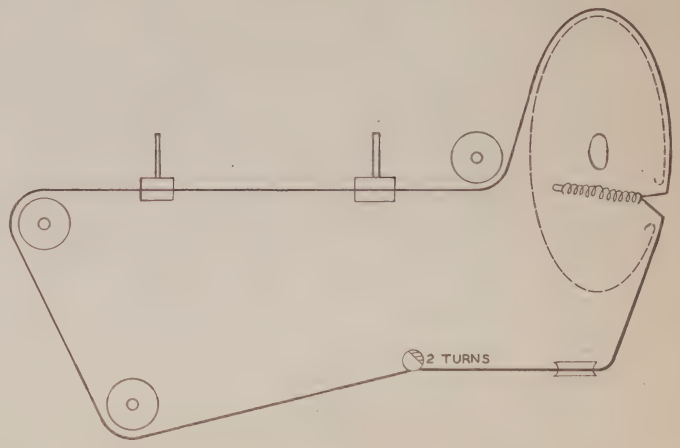
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0V.	0V.	0V.	0V.	2.2 V.DC	100 V.DC	6.3 V.AC	170 V.DC
2	6SA7	0V.	0V.	180 V.DC	100 V.DC	-3.7 V.DC	0V.	6.3 V.AC	0V.
3	6SK7	0V.	0V.	0V.	0V.	2.3 V.DC	100 V.DC	6.3 V.AC	180 V.DC
4	6SF7	0V.	-35 V.DC	0V.	7.2 V.DC	-25 V.DC	145 V.DC	6.3 V.AC	0V.
5	6H6	0V.	0V.	0V.	1.8 V.DC	0V.	0V.	6.3 V.AC	-2 V.DC
6	6SQ7	0V.	0V.	2 V.DC	0V.	0V.	150 V.DC	6.3 V.AC	0V.
7	6SF7	0V.	0V.	5 V.DC	40 V.DC	0V.	100 V.DC	6.3 V.AC	0V.
8	6H6	0V.	0V.	0V.	0V.	-2 V.DC	0V.	6.3 V.AC	.3 V.DC
9	6V6GT	0V.	6.3 V.AC	290 V.DC	240 V.DC	-16.5 V.DC	0V.	0V.	0V.
10	5Y3GT	0V.	348 V.DC	0V.	350 V.AC	0V.	350 V.AC	0V.	348 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SK7	0 Ω	0 Ω	0 Ω	4.5 MEG.	200 Ω	30 KΩ	0 Ω	25 KΩ
2	6SA7	0 Ω	0 Ω	25 KΩ	30 KΩ	21 KΩ	.8 Ω	.1 Ω	4 MEG.
3	6SK7	0 Ω	0 Ω	0 Ω	2.5 MEG.	200 Ω	30 KΩ	.1 Ω	25 KΩ
4	6SF7	0 Ω	12 MEG.	0 Ω	18.5 KΩ	300 KΩ	215 KΩ	0 Ω	0 Ω
5	6H6	0 Ω	0 Ω	4.5 MEG.	490 Ω	390 KΩ	10 MEG.	.1 Ω	4.5 MEG.
6	6SQ7	0 Ω	850 KΩ	12 KΩ	0 Ω	0 Ω	190 KΩ	.1 Ω	0 Ω
7	6SF7	0 Ω	10 MEG.	1250 Ω	4.5 MEG.	4.5 MEG.	245 KΩ	0 Ω	0 Ω
8	6H6	0 Ω	0 Ω	0 Ω	0 Ω	185 KΩ	2.2 MEG.	.1 Ω	430 KΩ
9	6V6GT	0 Ω	.1 Ω	25 KΩ	25 KΩ	580 KΩ	INF.	0 Ω	0 Ω
10	5Y3GT	INF.	25 KΩ	INF.	300 Ω	INF.	280 Ω	INF.	25 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



DIAL CORD DRIVE

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PACKARD-B.	STANCOR	THORDAR'N		
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.		
107	6800Ω	3.7Ω	770Ω	.7Ω	89409	A-3575*	T22947*		*Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PACKARD-BELL PART No.	JENSEN PART No.		
108	FIELD	VC IMP.	83701	ST-1201 Mod. P10-S		Replace output transformer to match 3Ω voice coil. Remove cover.
	PM	3.7Ω				
109	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			
	9½"	7/8"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PACKARD-BELL PART No.	MEISSNER PART No.	
110	Loop Ant.			29306		
111	BC Ant.Coil		5Ω	29400A		
112	SW Ant.Coil		0Ω	29401A	14-1044	
113	BC RF Coil	58Ω	3Ω	29102A	14-1027	
114	SW RF Coil	6Ω	0Ω	29101A	14-1045	
115	BC Osc. Coil	1Ω	5.8Ω	29205A	14-1040	
116	SW Osc. Coil		0Ω	29201A	14-1046	
117	Input IF	17Ω	16.5Ω	29004D	16-6658	
118	Output IF	21Ω		29007	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PACKARD-BELL PART No.		
119	Bayonet	6-8	.250	Blue		#44	
120	"	6-8	.250	"		#44	

MISCELLANEOUS

ITEM No.	PART NAME	PACKARD-BELL PART No.	NOTES
121	Bandswitch	86001A	3-Gang, Wafer Type, Rotary
122	Pushbutton Assy	86301	
123	Gang Var. Cap.	23500C	(12-463 MMF-Each Section)
	Switch, Micro	86802	Part of Automatic Cutter Stop
	Cutter Cartridge	36020	
	Dial Scale	38021A	
	Record Changer	580.45	

DISASSEMBLY INSTRUCTIONS

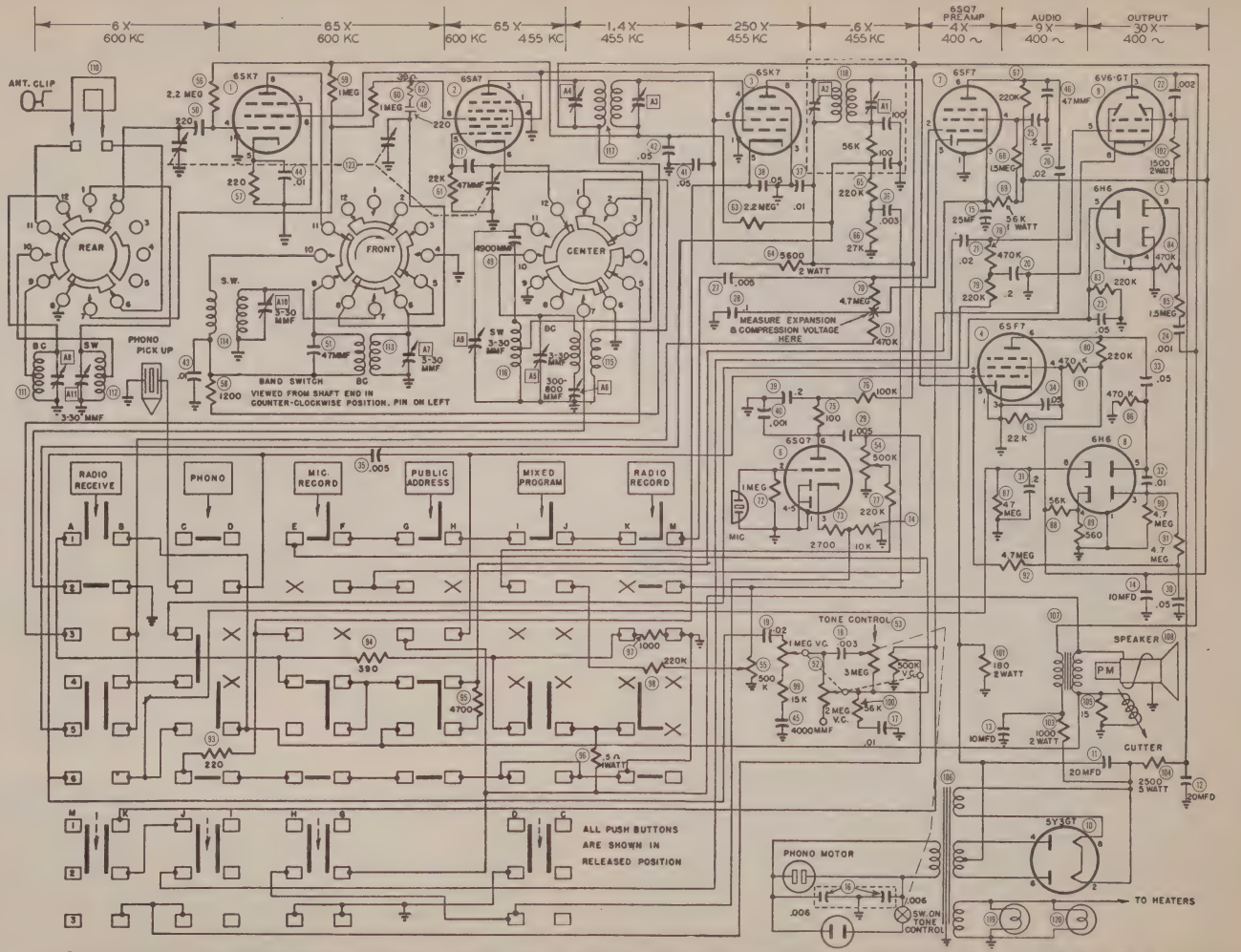
1. Remove the push-on type control knobs and felt washers. Note-Tuning control knob is set screw type.
2. Remove the four nuts and washers from the chassis board. (Note-Four spacers and eight lock washer.)
3. Remove the six wood screws holding the two wood supports for the chassis board.
4. Slide the supports down allowing room to remove chassis.
5. Disconnect the phono-motor plug from chassis.
6. Disconnect the phono-pickup plug from chassis.
7. Disconnect the phono-recorder plug from chassis.
8. Disconnect the speaker plug from chassis.
9. Disconnect the antenna plug from chassis.
10. Remove chassis from the chassis board and cabinet.
11. Remove four screws and brass washers holding speaker to cabinet. Remove speaker.

HOW TO CHECK EXPANSION VOLTAGE

Feed a 1 volt, 400 cycle signal into the Phono Input Plug. Make certain the phono button is depressed. Connect the leads of a vacuum tube voltmeter to the location indicated on the schematic and chassis ground. The voltage at this point should be between 3 and 4 volts positive DC. As a cross check, measure the cathode voltage of the 6sF7 Item (7), which should read about 5 volts DC. The expansion voltage should be about 1 volt or less.

HOW TO CHECK COMPRESSION VOLTAGE

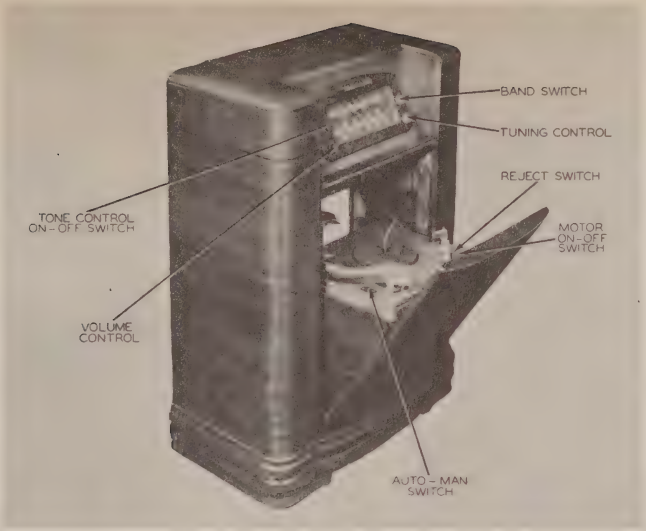
Depress the Radio Record button. Feed a 1 volt 400 cycle signal across the diode load (Items (65) and (66)). Connect the vacuum tube voltmeter to the location indicated on the schematic and ground. Measure the compression voltage. It should be approximately -2 to -3 volts.



IF=455KC THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 473-23

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement. Both 6H6 Tubes (Items 5&8) are removed during stage gain measurements.

PHILCO
MODEL 46-1209



PHILCO MODEL 46-1209

TRADE NAME	Philco, Model 46-1209
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC Operated Combination Auto. Phono-Radio 2 Band Superheterodyne - Self Contained Loop Ant.
TUBES (EIGHT)	Types, 7F8 Converter, 7H7 1st IF Amp., 7H7 2nd IF Amp., 7X7 Det.-AVC-AF, 7AF7 Phase Inverter-Phono Pre-Amp., (2) 6V6GT Power Output, 5Y3G/GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING .780 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1720KC SHORT WAVE 9.3-15.5MC

ALIGNMENT INSTRUCTIONS

To set pointer, turn variable fully closed and set pointer 2-3/16" from left edge of left dial light bracket. Volume control should be at maximum, radio-phono pushbutton in "radio" position, and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to terminal #1 of loop terminal strip. Low side to chassis.	455KC	BC	Variable fully open.	From terminal #3 on loop terminal strip to chassis.	A1,A2, A3,A4.	Adjust for maximum output.
	Loop	15MC	SW	8-13/32" from left edge of left dial light bracket	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Loosen trimmer and tune for 1st peak. Adjust for maximum output. Check for image at 14.1MC. If image is not heard reset A5 and check again for image.
	"	"	"	Tune for maximum output.	"	A6	Rock variable and adjust for maximum output.
						A7	Tighten A7 and then loosen 1/4 turn.
	Loop	1700KC	BC	8-11/16" from left edge of left dial light bracket	From terminal #3 on loop terminal strip to chassis	A8	Adjust for maximum output
	"	1500KC	"	Tune for maximum output.	"	A9	" " " "
	"	580KC	"	"	"	A7	Rock variable and adjust for maximum output. Repeat last three steps until no further increase can be obtained.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	7F8	7F8	8BW	
2	1st IF Amp.	7H7	7H7	8V	
3	2nd IF Amp.	7H7	7H7	8V	
4	Det.-AVC-AF	7X7	7X7	8BZ	
5	Phase Inv.-Phono Amp.	7AF7	7AF7	8AC	
6	Power Output	6V6GT/G	6V6GT/G	7AC	
7	Power Output	6V6GT/G	6V6GT/G	7AC	
8	Rectifier	5Y3GT/G	5Y3GT/G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

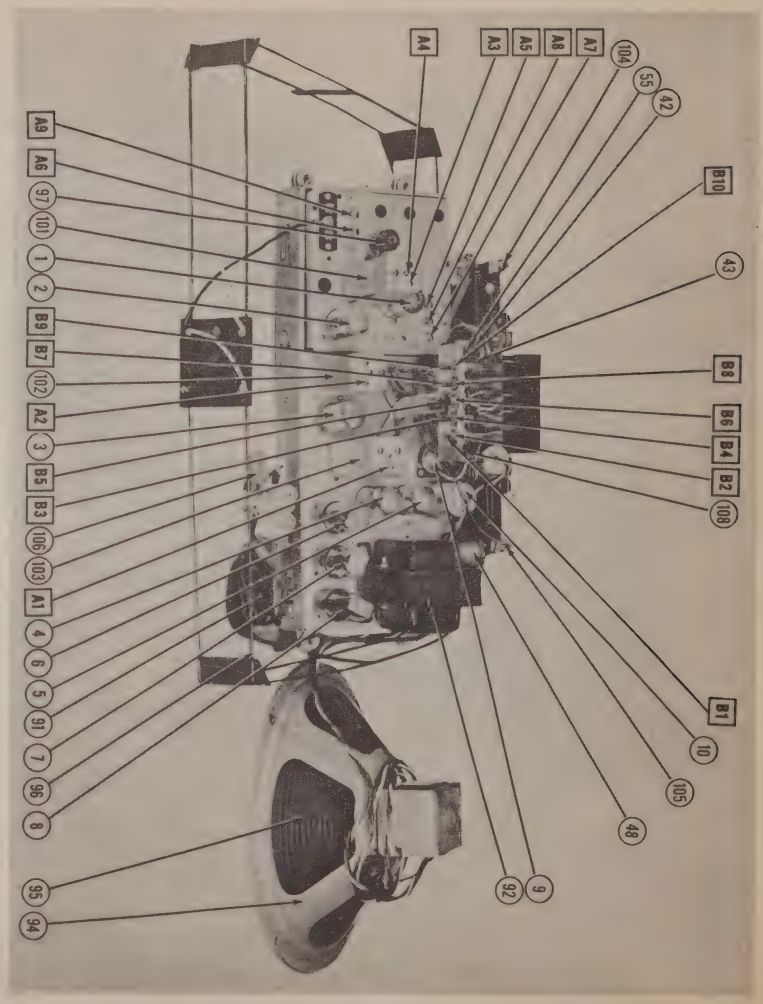
ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9	20	400	30-2555	EL-20	AF4J	UP2045	FP144	DY-20-450	Filter
10A	25	450	30-2556	EL-344	AF2222J†	UP7DJ54†	FP424†	DY-2x30-150	" ■
B	10	450							" ▲
11	.01	400	3903-0DG	TC-11	484-01	DT4S1	TP421	S-4-01	Line Bypass
12	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	" "
13	.003	1000	61-0117	TR-23	1084-003	MD16D3	TP457	XTIMS10-.003	Output Plate Bypass
14	.006	400	45-3500-7	TC-26	484-006	DT6D6	TP409	S-6-006	Audio Coupling
15	.006	400	45-3500-7	TC-26	484-006	DT6D6	TP409	S-6-006	" "
16	.1	400	61-0113	TC-1	484-.1	DT4P1	TP428	S-4-1	7AF7 Plate Decoupling
17	.2	200	45-3500-3	TC-2	484-.2	DT4P2	TP429	S-4-2	Bias Filter
18	.001	600	45-3500-5	TC-21	684-001	DT6D1	TP404	S-6-001	Tone Compensation
19	.01	400	61-0120	TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
20	.006	400	45-3500-7	TC-26	484-006	DT6D6	TP409	S-6-006	" "
21	.01	400	61-0120	TC-11	484-01	DT4S1	TP421	S-4-01	Tone Compensation
22	.01	400	61-0120	TC-11	484-01	DT4S1	TP421	S-6-01	" "
23	.006	400	45-3500-7	TC-26	484-006	DT6D6	TP409	S-6-006	Audio Coupling
24	.006	400	45-3500-7	TC-26	484-006	DT6D6	TP409	S-6-006	" "
25	.03	400	45-3500-1	TC-13	484-03	DT4S3	TP424	S-6-03	2nd IF Screen Bypass
26	.1	400	61-0113	TC-1	484-.1	DT4P1	TP428	S-4-1	2nd IF Plate Decoup.
27	.05	400	61-0122	TC-15	484-05	DT4S5	TP426	S-4-05	2nd IF Cath. Bypass
28	.01	400	61-0120	TC-11	484-01	DT4S1	TP421	S-4-01	1st IF Plate Decoup.
29	.03	400	45-3500-1	TC-13	484-03	DT4S3	TP424	S-6-03	1st IF Screen Bypass
30	.01	400	61-0120	TC-11	484-01	DT4S1	TP421	S-4-01	AVC Filter
31	.01	400	61-0120	TC-11	484-01	DT4S1	TP421	S-4-01	" "
32	.01	400	61-0120	TC-11	484-01	DT4S1	TP421	S-4-01	Conv. Plate Decoup.
33	100	500	6010105407	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Tone Compensation
34	100	500	6010105407	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Audio Plate Bypass
35	100	500	6010105407	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Tone Compensation
36	250	500	6010245307	1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Diode Filter
37	100	500	6010105407	1FM-31	1468-0001	5W5T1	MC235	MO.5-31	" "
38	510	500	6010515307	1FM-35	1468-0005	5W5T5	MC245	MO.5-35	RF Bypass Pwr. Supp.
39	255	500	30-1220-24						Fixed Padder
40	240	500	6010245307	1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Osc. Feedback
41	100		30-1225-2						Osc. Grid Bypass Cer.
42	485	500	30-1220-23						Osc. Feedback
43	285	500	30-1220-9						" "
44	750	500	6010755301	MS-38	1468-00075	1W5T8	MC251	MO.3-38	Cath. Coupling
45	240	500	6010245307	1FM-325	1468-00025	5W5T25	MC240	MO.5-325	RF Coupling
46	10	500	6000105407	MS-41	1468-00001	5W5Q1	MC215	MO.5-41	Neutralizing
47	255	500	30-1220-24						Fixed Padder

†Parallel sections to obtain desired capacity, in the Mallory replacement the bypass section is not used.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
48	6 Meg.	1	33-5538-1				Tone Control and Switch
49A	2 Meg.		33-5535-1	TM259	D18-139X		Volume Control
B	Shaft		Not Req.	Not Req.	A		Attach to 49A per instructions

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
50	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or. Antenna Coil Shunt SW
51	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. Mixer Grid
52	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red Mixer Cathode
53	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl. Bleeder
54	15KΩ	½	66-3153340	BTS-15K	Br.-Grn.-Or. Oscillator Grid
55	10KΩ	½	66-3104340	BTS-10K	Br.-Blk.-Or. Oscillator Cathode
56	33KΩ	½	66-3333340	BTS-33K	Or.-Or.-Or. Oscillator Plate Load
57	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Mixer Plate Decoupling-See Note 1
58	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
59	3.3 Meg.	½	66-5333340	BTS-3.3 Meg.	Or.-Or.-Grn. " "
60	68Ω	½	66-0683340	BW-½-68	Blue-Gray-Blk. 1st IF Cathode
61	27KΩ	½	66-3273340	BTS-27K	Red-Vi.-Or. 1st IF Screen Dropping
62	68Ω	½	66-0683340	BW-½-68	Blue-Gray-Blk. 2nd IF Cathode
63	150Ω	½	66-1153340	BW-½-150	Br.-Grn.-Br. 2nd IF Cathode
64	33KΩ	½	66-3333340	BTS-33K	Or.-Or.-Or. 2nd IF Screen Dropping
65	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl. IF Filter
66	1000Ω	½	66-2103340	BTS-1000	Br.-Blk.-Red 2nd IF Plate Decoupling
67	100KΩ	½	66-4103340	BTS-100K	Br.-Blk.-Yl. Diode Load
68	4.7Ω	½	66-9473340	BW-½-4.7	Yl.-Vi.-Gold Feedback
69	68Ω	½	66-0683340	BW-½-68	Blue-Gray-Blk. Feedback
70	10 Meg.	½	66-6103340	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
71	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. Bias Network
72	10 Meg.	½	66-6103340	BTS-10 Meg.	Br.-Blk.-Blue " "
73	33KΩ	½	66-3333340	BTS-33K	Or.-Or.-Or. Tone Compensation
74	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. AF Plate Load
75	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl. Volume Control Shunt-Phono
76	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. Tone Compensation
77	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. Phase Inverter Grid
78	4700Ω	½	66-2473340	BTS-4700	Yl.-Vi.-Red Phase Inverter Cathode
79	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or. Phase Inverter Cathode
80	56KΩ	½	66-3563340	BTS-56K	Grn.-Blue-Or. Phase Inverter Plate Load
81	6800Ω	½	66-2683340	BTS-6800	Blue-Gray-Red Phono Amplifier Cathode
82	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	Yl.-Vi.-Grn. Phono Amplifier Grid
83	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl. Phono Amplifier Plate Load
84	220KΩ	½	66-4223340	BTS-220KΩ	Red-Red-Yl. Tone Compensation
85	470KΩ	½	66-4473340	BTS-470KΩ	Yl.-Vi.-Yl. Phono Amplifier Plate Decoupling
86	330KΩ	½	66-4333340	BTS-330K	Or.-Or.-Yl. Output Grid
87	330KΩ	½	66-4333340	BTS-330K	Or.-Or.-Yl. " "
88	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl. Bias Network Filter
89	135Ω	10	33-3435-2	AB-150	Bias - See Note 2
90	15KΩ	2	66-3153340	BT-2-15K	Br.-Grn.-Or. Filter

Note 1 - Some models use a 4700Ω resistor in this application. Replacement same as Item 78.
Note 2 - On IRC replacement set slider @ 135Ω from one end.

TRANSFORMER (MATCHING)

ITEM No.	RATING			REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE		TURNS RATIO	PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI. to SEC.					
91	.3Ω	5700Ω	1 to 70	32-8256				

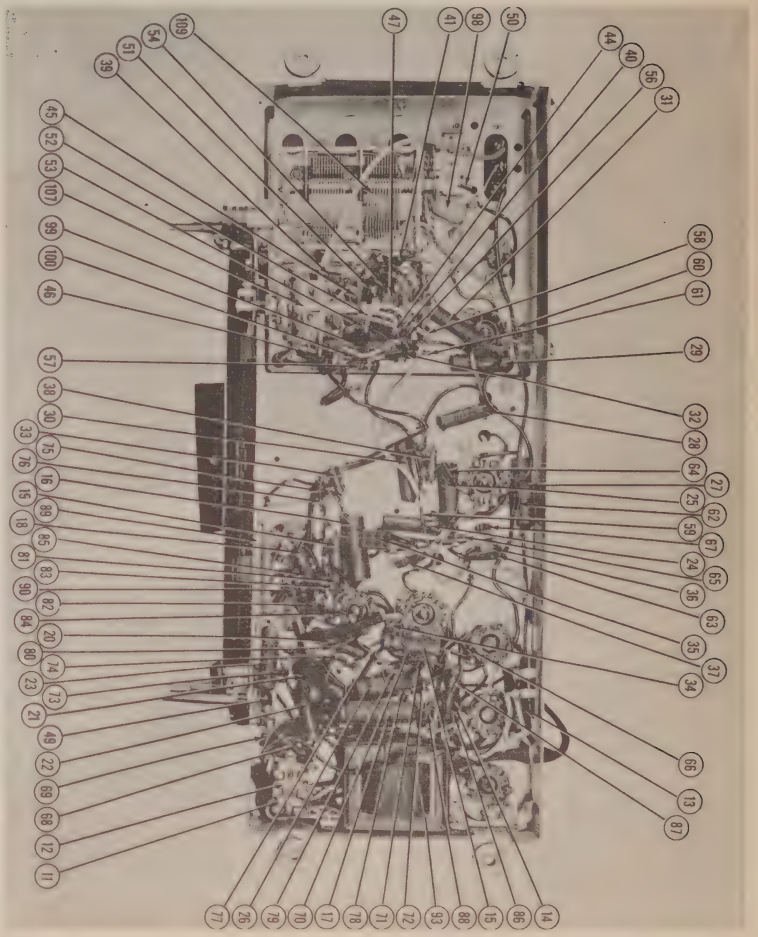
TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	PHILCO PART No.	STANCOR PART No.	THORDARSON PART No.	INSTALLATION NOTES
92	117V AC @ .780A	640V CT @ .112A	4.9V AC @ 1.8A	6.5V AC @ 2.2A	32-8248	P-4080*	T22R32	*Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
93	12000Ω CT	6.3Ω	580Ω CT	.5Ω	32-8274	A-3824*	T22S56*		*Drill new mounting holes.

CHASSIS—BOTTOM VIEW



PUSHBUTTON ADJUSTMENTS

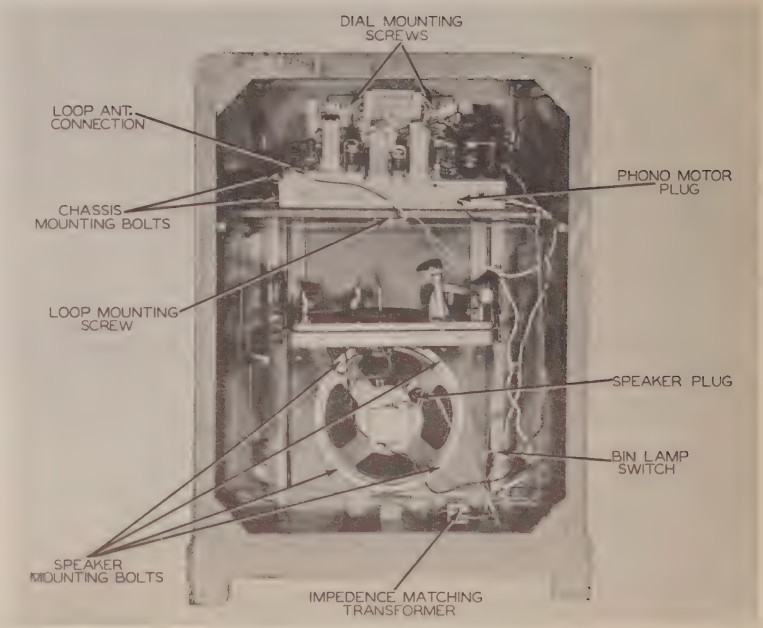
The frequency range of pushbuttons reading from left to right are as follows:
540-1000 KC, 600-1200 KC, 650-1300 KC, 830-1500 KC, 900-1600 KC.

To set up pushbuttons for automatic tuning, proceed as follows:

1. Turn receiver on and allow it to warm up for at least 15 minutes.
2. List five desired stations arranged in order from low to high frequencies, making sure that each will fall within range of button to be used.
3. Turn band switch to pushbutton position, push in second button from left and adjust B1 to tune in first station on list.
4. Adjust B2 for maximum volume.
5. Follow same procedure for remaining pushbuttons, adjusting B3, B5, B7 and B9 to tune in desired stations and adjusting B4, B6, B8, and B10 for maximum volume.
6. For greater accuracy repeat all adjustments.

DISASSEMBLY INSTRUCTIONS

1. Remove the push-on type control knobs.
2. Remove fourteen Phillips head screws from back board of cabinet. Remove back board.
3. Disconnect the phono-motor plug from chassis.
4. Disconnect the phono-pickup receptacle from impedance matching transformer.
5. Disconnect the speaker receptacle from speaker plug on speaker.
6. Remove light switch spring from side panel board on speaker panel board.
7. Remove two Phillips head screws holding light switch to cabinet. Remove switch.
8. Remove two Phillips head screws holding impedance matching transformer to cabinet below speaker. Disconnect the plug from impedance matching transformer from coupling to radio receiver. Remove transformer.
9. Disconnect loop antenna leads from screws on terminal strip.
10. Remove wood screw, washers, and spacers from loop antenna mounting board.
11. Lift loop antenna from bottom mounting board and remove from cabinet.
12. Remove the four chassis mounting bolts.
13. Remove two wood screws and washers holding dial bracket assembly to cabinet.
14. Remove chassis from cabinet.
15. Remove four nuts holding speaker to speaker mounting posts. Remove speaker.



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.		
	FIELD RES.	VC IMP.				
94	680Ω	5.3Ω	38-1595			
	CONE DIA.	VC DIA.				
95	11½"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

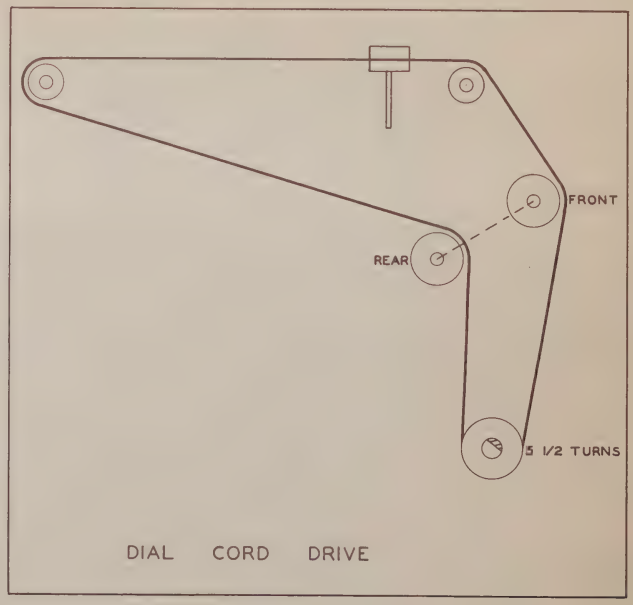
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
96	Loop Ant.		.1Ω	76-1989		
97	BC Ant.Coil		1.5Ω	32-4033-1		
98	SW Ant.Coil		0Ω	32-4050-4		
99	BC Osc.Coil		3Ω	32-4019-2	14-1040	
100	SW Osc.Coil		0Ω	32-3996-1		
101	Input IF	1Ω	21Ω	32-4106		
102	Interstage IF	3.5Ω	9.5Ω	32-4107		
103	Output IF	10Ω	10Ω	32-4108		

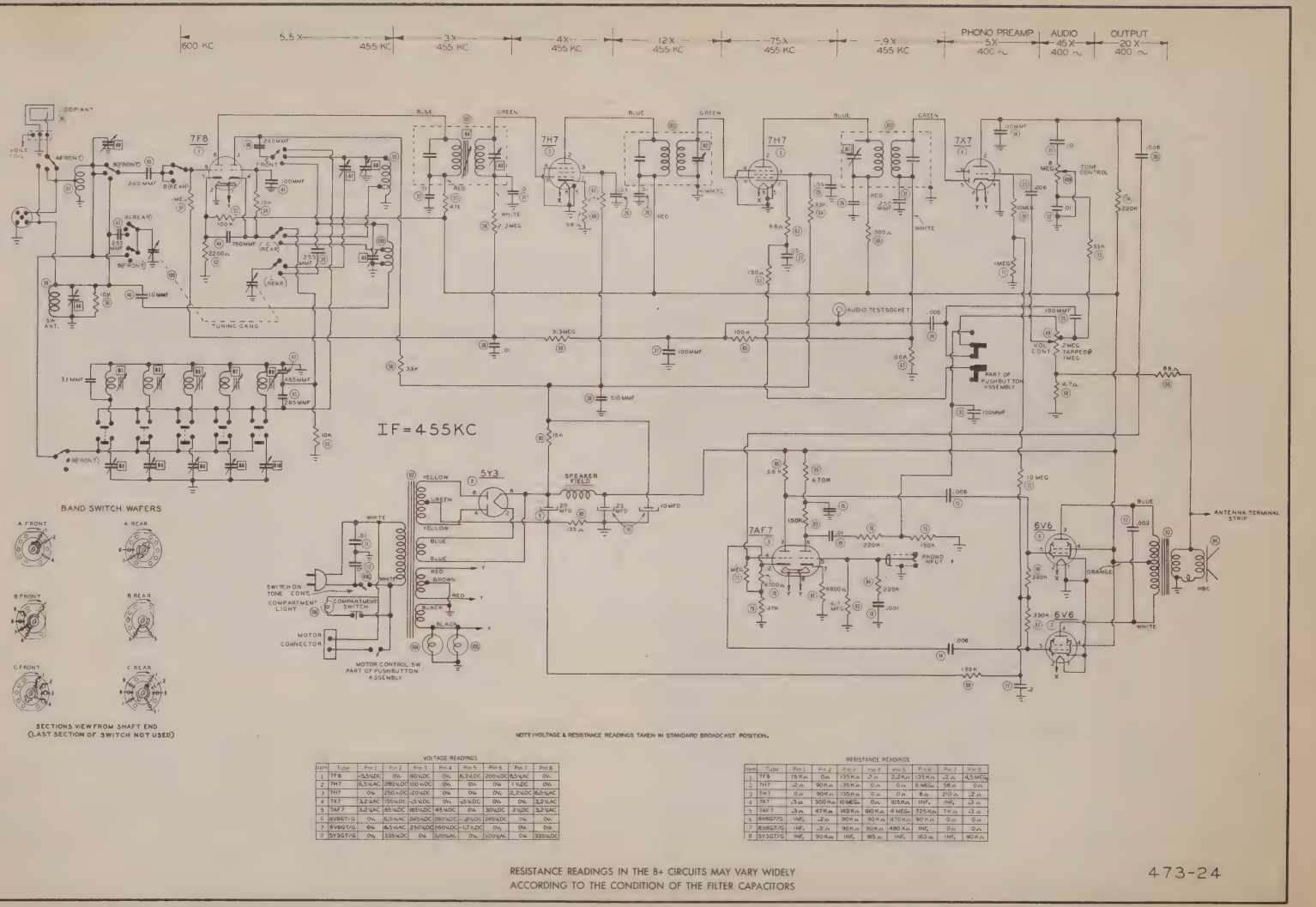
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
104	Bayonet	6-8	0.20	White	34-2040		Type 51
105	Bayonet	6-8	0.20	"	34-2040		" "
106	Screw	110	.05		34-2464		Bin Light

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
107	Bandswitch	42-1788	
108	Pushbutton Assy.	42-1756	Includes Phono On-Off Switch
109	2-Gang Var. Cap	31-2719	
	Switch	42-1702	Bin Lamp
A6, A9	Trimmer Strip	31-6476	SW Ant. Trimmer; BC Ant. Trimmer
A7, A8	Trimmer Strip	31-6464	BC Osc. Padder; BC Osc. Trimmer
A5			SW Osc. Trimmer
	Dial Pointer	56-3179	
	Dial Scale	76-2580	





NOTE: VOLTAGE & RESISTANCE READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7F8	-.52VDC	0%	80VDC	0%	6.3VDC	200VDC	6.5VAC	0%
2	7H7	6.5VAC	280VDC	100VDC	0%	0%	0%	1VDC	0%
3	7H7	0%	250VDC	120VDC	0%	0%	0%	2.2VDC	6.5VAC
4	7X7	3.2VAC	155VDC	-.5VDC	0%	-.5VDC	0%	0%	3.2VAC
5	7AF7	3.2VAC	85VDC	185VDC	45VDC	0%	30VDC	2VDC	3.2VAC
6	6V6GT/G	0%	6.5VAC	345VDC	260VDC	-21VDC	245VDC	0%	0%
7	6V6GT/G	0%	6.5VAC	250VDC	260VDC	-17VDC	0%	0%	0%
8	5Y3GT/G	0%	335VDC	0%	320VAC	0%	320VAC	0%	335VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7F8	15Ka	0a	135Ka	.3a	2.2Ka	135Ka	.2a	4.5MEG
2	7H7	.2a	90Ka	135Ka	0a	0a	6 MEGa	58a	0a
3	7H7	0a	90Ka	135Ka	0a	0a	8a	210a	.2a
4	7X7	.3a	300Ka	10 MEGa	0a	105Ka	INFa	INFa	.3a
5	7AF7	.3a	47Ka	142Ka	90Ka	4 MEGa	725Ka	7Ha	.3a
6	6V6GT/G	INFa	.2a	90Ka	90Ka	470Ka	90Ka	0a	0a
7	6V6GT/G	INFa	.2a	90Ka	90Ka	480Ka	INFa	0a	0a
8	5Y3GT/G	INFa	90Ka	INFa	185a	INFa	183a	INFa	90Ka

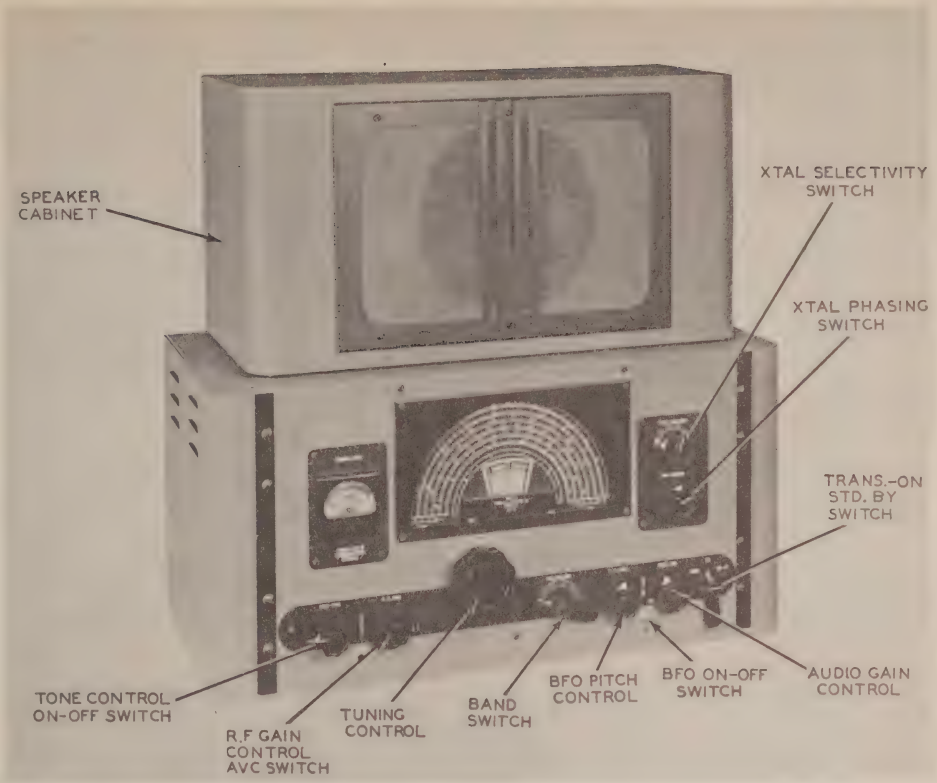
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-24

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RME
MODEL 45



RME
MODEL 45 PAGE 1

R.M.E. MODEL 45

TRADE NAME	RME Model 45
MANUFACTURER	Radio Manufacturing Engineers, Inc., Peoria (6), Ill.
TYPE SET	AC Operated Multiband Communications Superheterodyne Receiver
TUBES (NINE)	Types, 7B7 RF Amp., 7J7 Converter, (2) 7B7 1st & 2nd IF Amp., 7B6 Det.-BFO, 7C7 AF Amp., 7A6 Noise Limiter, 7C5 Power Output, 80 Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	1.53 Amp. @ 117 Volts AC
TUNING RANGES -	BROADCAST - Band 1 - .540-1.6 MC, Band 2 - 1.6-2.9 MC, Band 3 - 2.9-5.4 MC, Band 4 - 5.4-9.8 MC, Band 5 - 9.8-18 MC, Band 6 - 18-33 MC.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: RME PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	7B7	7B7	8AR	
2	Converter	7J7	7J7	8AK	
3	1st IF Amp.	7B7	7B7	8V	
4	2nd IF Amp.	7B7	7B7	8V	
5	Det.-Beat Osc.	7B6	7B6	8W	
6	1st AF Amp.	7C7	7C7	8V	
7	Noise Limiter	7A6	7A6	7AJ	
8	Power Output	7C5	7C5	6AA	
9	Rectifier	80	80	4C	

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RME PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
50A	1 Meg.	1		MR53	D13-137	M-63-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 50A per instructions
C	Switch			M26	41	SW-A	" " " " "
51A	30KΩ	1					RF Gain Control & AVC Switch
B	Shaft						
C	Switch						
52A	250KΩ	1		UM149	D11-130	M-55-S	Audio Gain Control
B	Shaft			Not Req.	A	Not Req.	Attach to 52A per instructions
53	200Ω	1		C200P	W-200	43-200	Meter Adj. Control

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RME PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
10A	15	450		EL-344	AF44J	UP6CJ47	FP390	DY-3x15-450	■ Filter
B	10	450			"				"
C	15	450			PRS450-10				▲ "
11	20	25		TA-25	PRS25-25	BR252A	TC26	M-25-25	Output Cath. Bypass
12	20	25		TA-25	PRS25-25	BR252A	TC26	M-25-25	1st AF Cath. Bypass
13	1	200		TC-10	484-1	DT4W1	TP422	S-4-1M	AVC Diode Filter
14	1	400		TC-10	484-1	DT4W1	TP422	S-4-1M	RF Bypass Pwr. Supp.
15	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	Tone Compensation
16	.1	600		TC-1	684-.1	DT6P1	TP418	S-6-1	Audio Coupling
17	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	1st AF Screen Bypass
18	.1	600		TC-1	684-.1	DT6P1	TP418	S-6-1	Audio Coupling
19	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	AVC Filter
20	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	BFO Plate Decoupling
21	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	2nd IF Plate Decoup.
22	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	2nd IF Screen Bypass
23	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	2nd IF Cath. Bypass
24	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	AVC Filter
25	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	1st IF Plate Decoup.
26	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	1st IF Screen Bypass
27	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	1st IF Cath. Bypass *
28	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	AVC Filter
29	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	Conv. Plate Decoup.
30	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	Conv. Cath. Bypass
31	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	Conv. Screen Bypass
32	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	RF Plate Decoupling
33	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	RF Screen Bypass
34	.1	600		TC-1	684-.1	DT6P1	TP418	S-6-1	AVC Filter
35	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	Osc. Bypass
36	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	RF Cath. Bypass
37	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	AVC Filter *
38	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	IF Bypass Vol. Cont.
39	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	IF Bypass Diode
40	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	BFO Coupling
41	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	" "
42	50	500		MS-45	1469-00005	5R5Q5	MCB225	MOS.5-45	Fixed Trimmer
43	50	500		MS-45	1469-00005	5R5Q5	MCB225	MOS.5-45	Fixed Trimmer
44	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Grid Capacitor
45	550	500							Fixed Padder
46	600	500							" "
47	1300	500							" "
48	1700	500							" "
49	3900	500							" "
127	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Tone Compensation *

*Not used in all models.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RME PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
54	100KΩ	1/3		BTS-100K	Br.-Blk.-Blue AVC Network
55	50KΩ	1		BTA-47K	Grn.-Blk.-Or. Bleeder
56	15Ω	1/3		BW-½-150	Br.-Grn.-Br. RF Cathode
57	2200Ω	1/3		BTS-2200	Red-Red-Red RF Screen Dropping
58	2000Ω	1/3		BTS-2200	Red-Blk.-Red Mixer Screen Dropping
59	2200Ω	1/3		BTS-2200	Red-Red-Red RF Plate Decoupling
60	300Ω	1/3		BW-½-270	Or.-Blk.-Br. Converter Cathode
61	50KΩ	1/3		BTS-47K	Grn.-Blk.-Or. Oscillator Grid
62	2000Ω	1/3		BTS-2200	Red-Blk.-Red Mixer Plate Decoupling
63	2000Ω	1/3		BTS-2200	Red-Blk.-Red Oscillator Plate Decoupling-See Note 1
64	100KΩ	1/3		BTS-100K	Br.-Blk.-Yl. 1st IF Grid -See Note 2
65	100KΩ	1/3		BTS-100K	Br.-Blk.-Yl. AVC Network
66	2200Ω	1/3		BTS-2200	Red-Red-Red 1st IF Screen Dropping
67	2200Ω	1/3		BTS 2200	Red-Red-Red 1st IF Plate Decoupling
68	100KΩ	1/3		BTS-100K	Br.-Blk.-Yl. AVC Network
69	300Ω	1/3		BW-½-270	Or.-Blk.-Br. 2nd IF Cathode
70	2200Ω	1/3		BTS-2200	Red-Red-Red 2nd IF Screen Dropping
71	2200Ω	1/3		BTS-2200	Red-Red-Red 2nd IF Plate Decoupling
72	50KΩ	1/3		BTS-47K	Grn.-Blk.-Or. Diode Load
73	50KΩ	1/3		BTS-47K	Grn.-Blk.-Or. Diode Load
74	1 Meg.	1/3		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
75	100KΩ	1/3		BTS-100K	Br.-Blk.-Yl. BFO Grid
76	250KΩ	1/3		BTS-270K	Red-Grn.-Yl. BFO Plate Decoupling
77	250KΩ	1/3		BTS-270K	Red-Grn.-Yl. Noise Limiter Network
78	50KΩ	1/3		BTS-47K	Grn.-Blk.-Or. Tone Compensation
79	1000Ω	1/3		BTS-1000	Br.-Blk.-Red AF Cathode
80	1 Meg.	1/3		BTS-1 Meg.	Br.-Blk.-Grn. AF Screen Dropping
81	100KΩ	1/3		BTS-100K	Br.-Blk.-Yl. AF Plate Load
82	250KΩ	1/3		BTS-270K	Red-Grn.-Yl. Output Grid
83	240Ω	1		BW-1-220	Red-Yl.-Br. Output Cathode
84	35Ω	1/3		BW-½-33	Or.-Grn.-Blk. Headphone Shunt
85	20KΩ	1/3		BTS-22K	Red-Blk.-Or. Decoupling
86A	5500Ω	10		ABA-10,000	Voltage Dropping-See Note 3
B	4500Ω				Bleeder
87	18Ω	1/3		BW-½-18	Br.-Gray-Blk. Parasitic Suppressor-See Note 1
88	250KΩ	1/3		BTS-270K	Red-Grn.-Yl. Crystal Filter Network
89	100KΩ	1/3		BTS-100K	Br.-Blk.-Yl. Crystal Filter Network
90	50KΩ	1/3		BTS-47K	Grn.-Blk.-Or. Crystal Filter Network
91	20KΩ	1/3		BTS-22K	Red-Blk.-Or. Crystal Filter Network
92	1500Ω	1/3		BTS-1500	Br.-Grn.-Red Series "S" Meter
93	18Ω	1/3		BW-½-18	Br.-Gray-Blk. Series Meter Pilot Light-See Note 1

Note 1 - Not used in all models.
Note 2 - Not used in models having crystal filter unit.
Note 3 - On IRC replacement set slider 4500Ω from one end.

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE @ CURRENT	REPLACEMENT DATA: RME PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	INSTALLATION NOTES
94	.116A	220Ω	12 Henries		C-1710	T20C54 ‡	‡ Drill one new mounting hole.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: RME PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	INSTALLATION NOTES
95	117V AC @ 1.53A	670V CT @ .116A	5.3V AC @ 1.8A	6.5V AC @ 2.2A		P-6013	T22R06	

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: RME PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
96	3400Ω	4Ω	170Ω	.4Ω		A-3825 ‡	T22S60 ‡		‡ Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: RME PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA	INSTALLATION NOTES
	FIELD	VC IMP.				
97	PM	4Ω		ST-117 Mod. P8-T		
	CONE DIA.	VC DIA.				
98	7-3/4"	7/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: RME PART No.	REPLACEMENT DATA: MEISSNER PART No.	
	Band					
99	Ant. Coil #1	1.5Ω	3.2Ω			
100	" " #2	.5Ω	1.5Ω			
101A	" " #3	0Ω	.2Ω			Items 101A and 101B wound on same form.
B	" " #4	0Ω	0Ω			
102A	" " #5	0Ω	0Ω			Items 102A and 102B wound on same form.
B	" " #6	0Ω	0Ω			
103	RF Coil #1	1.5Ω	3.5Ω			
104	" " #2	.5Ω	1.5Ω			
105A	" " #3	.2Ω	.2Ω			Items 105A and 105B wound on same form.
B	" " #4	0Ω	0Ω			
106A	" " #5	0Ω	0Ω			Items 106A and 106B wound on same form.
B	" " #6	0Ω	0Ω			
107	Osc. Coil #1	.5Ω	2.3Ω			
108	" " #2	.5Ω	1.5Ω			
109A	" " #3	0Ω	.2Ω			Items 109A and 109B wound on same form.
B	" " #4	0Ω	.1Ω			
110A	" " #5	0Ω	0Ω			Items 110A and 110B wound on same form.
B	" " #6	0Ω	0Ω			
111	BFO	1Ω	3Ω			
112	XTAL Filter Coil		6Ω			
113	Input IF	3Ω	4.5Ω			
114	Inter. IF	7.9Ω	3Ω			
115	Output IF	3Ω	7.8Ω			

PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: RME PART No.		INSTALLATION NOTES
116	Screw	6-8	0.25	Blue			Type 46
117	Bayonet	6-8	0.15	Brown			Type 47
118	Bayonet	6-8	0.15	Brown			Type 47
119	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	RME PART No.	NOTES
120	Switch		Stand-by, 3 Position, 2 Pole
121	Bandswitch		
122	Switch		XTAL Selectivity, 5 Pos., 1 Pole
123	Var. Capacitor		XTAL Phasing
124	Var. Capacitor		BFO
125	4 Gang Var. Cap		
126	Crystal		
128	Switch		BFO, SPST

DISASSEMBLY INSTRUCTIONS

FOR ALIGNMENT ONLY

1. For alignment remove six Phillips head screws from bottom of cabinet and remove bottom plate.

COMPLETE DISASSEMBLY

2. Remove two self-tapping screws from bottom of cabinet.
3. Remove eight machine screws and panel strips from front of cabinet and two Phillips head screws.
4. Slide chassis from cabinet.
5. Remove five hex nuts from bottom of chassis.
6. Remove bottom chassis cover.
7. Remove two nuts and two self-tapping screws from coil shield on top of chassis, remove shield.

REMOVAL OF CRYSTAL COMPARTMENT

8. Remove XTAL knobs from front of chassis. Remove four Phillips head screws from XTAL name plate and remove plate.
9. Remove two self-tapping screws from XTAL compartment on top of chassis. Unplug XTAL compartment from socket on chassis.
10. Remove eight self-tapping screws from shield on XTAL compartment.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use "R" meter on receiver for output indication when aligning. B.O. switch, crystal selectivity switch should be off, trans.-std. by-on switch should be on, and RF gain fully clockwise. Output of signal generator no higher than necessary to obtain output reading. Audio gain should be sufficiently clockwise to enable monitoring of signal. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of center section of variable. Low side to chassis.	455KC	1	Variable fully closed	See pre-alignment instructions.	A1,A2, A3,A4, A5.	Adjust for maximum reading.
Turn crystal selectivity switch to position 5. Tune signal generator for peak on "R" meter. This will be approximately 455KC. The signal generator is now accurately tuned to the crystal frequency. Turn the crystal selectivity switch to "off" and repeat last step making certain that the setting of the signal generator remains unchanged.							
.1 MFD.	High side to stator of center section of variable. Low side to chassis.	455KC	1	Variable fully closed	See pre-alignment instructions.	A6	Turn B.O. switch on and set pitch control vertical. Adjust A6 for zero beat.
200Ω	High side to ant. terminal. Low side to chassis.	600KC	"	600KC	"	A7	Adjust for maximum reading.
200Ω	"	1400KC	"	1400KC	"	A8	Adjust for maximum reading. Repeat last two steps until no further improvement can be made.
200Ω	"	"	"	"	"	A9, A10	Adjust for maximum reading.
200Ω	"	600KC	"	600KC	"	A11, A12	Adjust for maximum reading. Repeat last two steps until no further improvement can be made.
200Ω	"	1800KC	2	1800KC	"	A13	Adjust for maximum reading.
200Ω	"	2800KC	"	2800KC	"	A14	Adjust for maximum reading. Repeat last two steps until no further improvement can be made.
200Ω	"	"	"	"	"	A15,A16	Adjust for maximum reading.
200Ω	"	1800KC	"	1800KC	"	A17,A18	Adjust for maximum reading. Repeat last two steps until no further improvement can be made.
200Ω	"	5MC	3	5MC	"	A19	Adjust for maximum reading.
200Ω	"	5MC	"	5MC	"	A20,A21	"
200Ω	"	9MC	4	9MC	"	A22	"
200Ω	"	"	"	"	"	A23,A24	"
200Ω	"	16MC	5	16MC	"	A25	"
200Ω	"	"	"	"	"	A26,A27	"
200Ω	"	30MC	6	30MC	"	A28	"
200Ω	"	"	"	"	"	A29,A30	"
Tune in a broadcast station playing music. Turn crystal selectivity switch to position 5 and tune in station accurately. Adjust crystal phasing control for minimum background noise. Turn selectivity control to position "1". Adjust A31 for most natural reproduction of music.							

ANTENNA

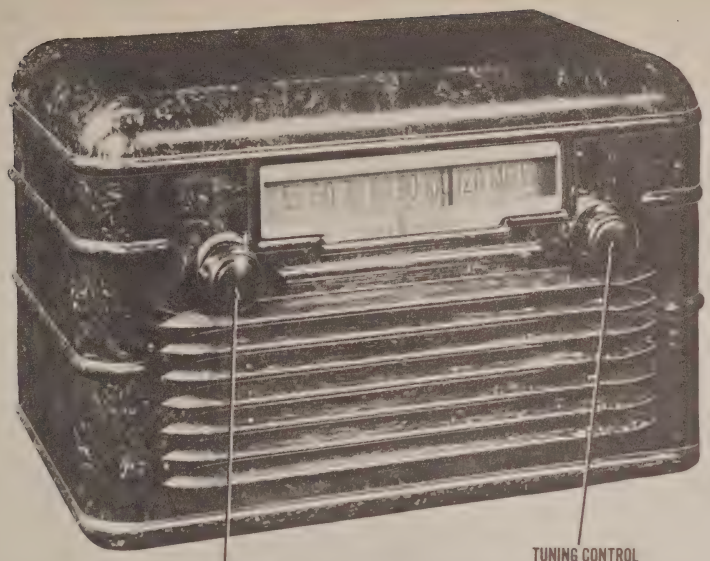
The terminals on the rear apron marked "A-A-G" are for the antenna connection. When the receiver leaves the factory there is a jumper between one of the "A" posts and the "G" post. Good results may be obtained by connecting a wire 50 to 75 feet long to the other "A" post. If a 2 wire feeder system is used the jumper is removed and the two feeders are connected to "A" and "A". A ground may be connected to the "G" post if it improves reception.

RELAY AND BREAK-IN TERMINALS

On the rear apron are two sets of contacts marked "R" and "B". The pair marked "B" are in series with the plate supply. This pair must always be shorted when the receiver is being used, either by a relay or by a jumper if a remote control feature is not used. This jumper is in place when the set leaves the factory.

The pair marked "R" are relay control terminals. This pair is shorted when the receiver stand-by switch is turned to "Trans". It may be used to control an external relay in conjunction with a suitable external voltage.

RayEnergy
MODEL SRB-1X



RayEnergy
MODEL SRB-1X

RAY ENERGY MODEL SRB-1X

TRADE NAME	Ray Energy, Model SRB-1X
MANUFACTURER	Ray Energy Radio & Tel. Corp., 32 W. 22nd St., New York, New York
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (FIVE)	Types, 12SA7 or 14Q7 Converter, 12SK7 or 14A7 IF Amp., 12SQ7 or 14B6 Det.-AVC-AF, 50L6GT or 50A5 Power Output, 35Z5GT or 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1650KC RATING .230 Amp. @ 117Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of large section of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of set. Adjust for maximum output.
	"	1400KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: RAY ENERGY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	Converter	12SA7	12SA7	8R	
B	Converter	14Q7	14Q7	8AL	
2A	IF Amp.	12SK7	12SK7	8N	
B	IF Amp.	14A7	14A7	8V	
3A	Det.-AVC-AF	12SQ7	12SQ7	8Q	
B	Det.-AVC-AF	14B6	14B6	8W	
4A	Power Output	50L6GT	50L6GT	7AC	
B	Power Output	50A5	50A5	6AA	
5A	Rectifier	35Z5GT	35Z5GT	6AD	
B	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RAY ENERGY PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150		TA-530	PRSA150-40-40	BRD3515	2N520	DSB-5030-150	Filter - Red
B	30	150							" - Blue
7	20	150		UT-201	PRS150-20	BR2015	TC45	M-20-150	" -
8	25	50		TA-525	PRS50-25	BR255	TC36	M-25-50	Cath. Bypass
9	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	Line Filter
10	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Output Plate Bypass
11	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
12	.002	600		TC-22	584-002	DT6D2	TP405	S-6-002	" "
13	.05	200		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
14	200	500		1FM-32	1468-0002	5W5T2	MC237	MO.5-32	Audio Plate Bypass
15	2000	500		1FM-22	1467-002	1W5D2	MC457	MW.5-22	IF Bypass Vol. Cont.
16	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	IF Bypass Diode*
17	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Osc. Grid Capacitor
18	2000	500		1FM-22	1467-002	1W5D2	MC457	MW.5-22	Ant. Coupling

*Not used in all models.

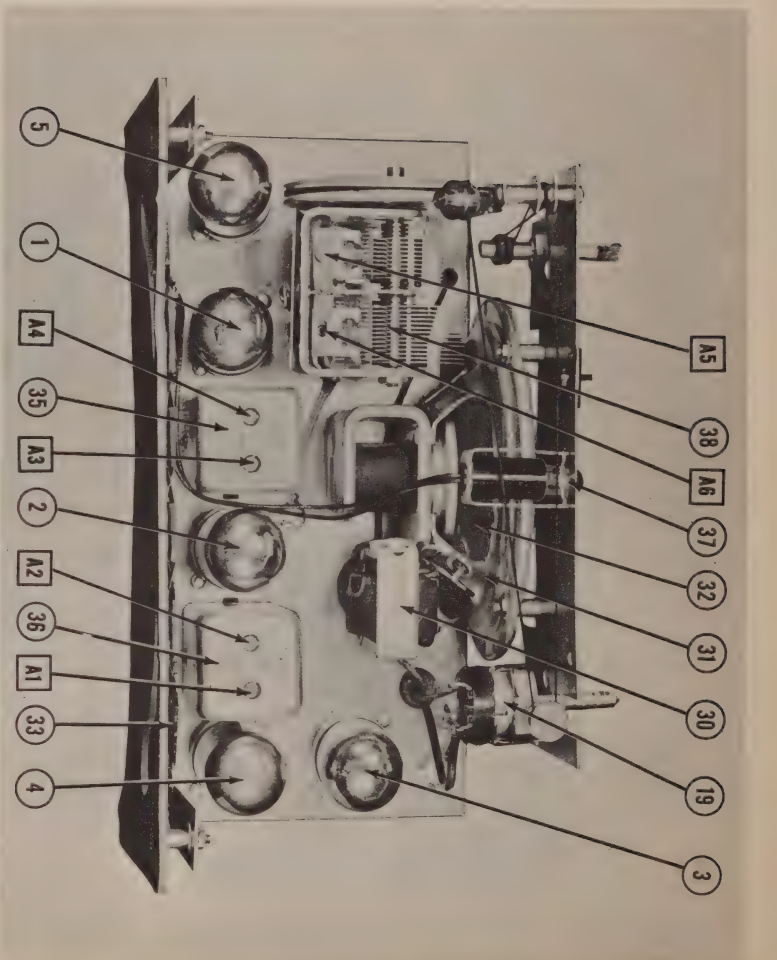
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RAY ENERGY PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	1		MR48	D13-133	M-60-Z	Volume Control
B	Shaft			Not Req.	A	Not Req.	Attach to 19A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RAY ENERGY PART No.	IRC PART No.	IDENTIFICATION CODES
20	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
21	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AVC Network
22	3 Meg.	½		BTS-3.3 Meg.	Or.-Blk.-Grn. " "
23	30KΩ	½		BTS-33K	Or.-Blk.-Or. Diode RF Filter
24	15 Meg.	½		BTS-15 Meg.	Br.-Grn.-Blue AF Grid
25	250KΩ	½		BTS-270K	Red-Grn.-Yl. AF Plate Load
26	500KΩ	½		BTS-470KΩ	Grn.-Blk.-Yl. Output Grid
27	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
28	200Ω	1		BW-1-220	Red-Blk.-Br. Filter
29	1200Ω	1		BTA-1200	Br.-Red-Red "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		RAY ENERGY PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
30	2000Ω	3.5Ω	180Ω	.7Ω		A-3876*	T2S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			RAY ENERGY PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-108		
31	FM	3.5Ω		Mod. P6-A		
	CONE DIA.	VC DIA.				
32	4-3/4"	1/8"	CONE HAS SPECIAL ADJUSTMENT FEATURE-ORDER FROM MANUFACTURER			

R F COILS

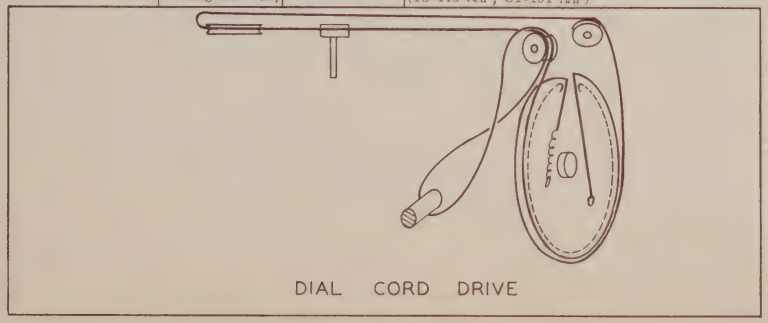
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	RAY ENERGY PART No.	MEISSNER PART No.	
33	Loop Ant.		1Ω			
34	Osc. Coil		6.2Ω		14-1040	
35	Input IF	30.5Ω	29.5Ω	SLR-124	16-6656	
36	Output IF	30Ω	30.5Ω	SLR-125	16-6660	

DIAL LIGHT

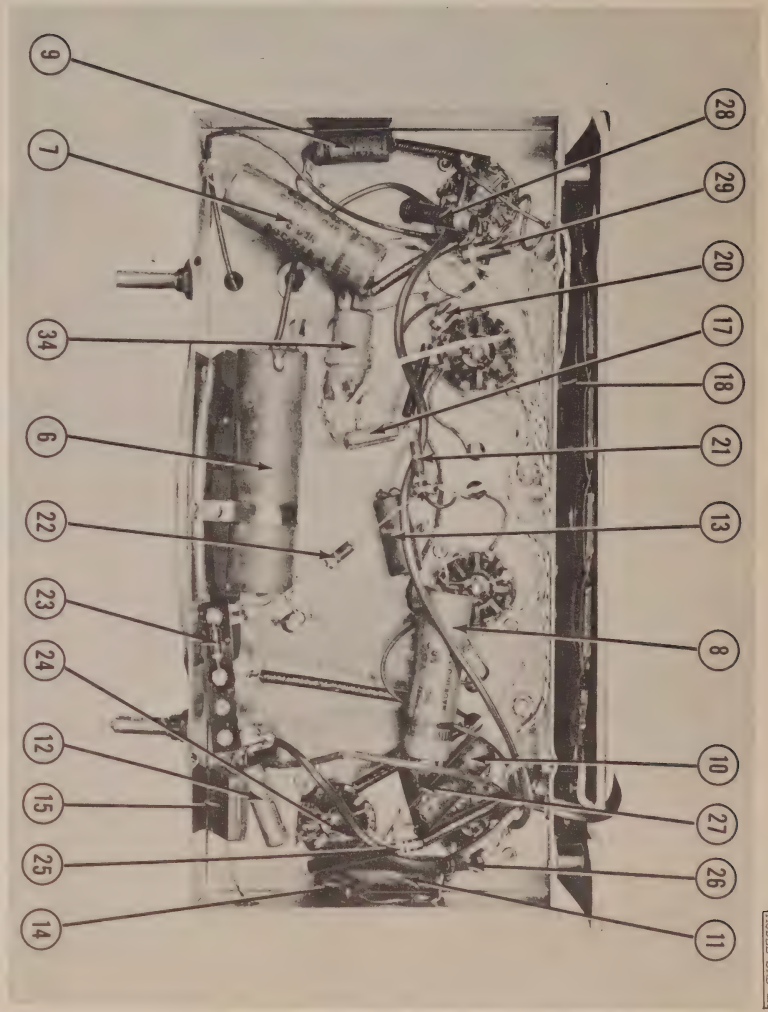
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					RAY ENERGY PART No.		
37	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

ITEM No.	PART NAME	RAY ENERGY PART No.	NOTES
38	2 Gang Var. Cap		(13-448 MMF, 31-191 MMF)

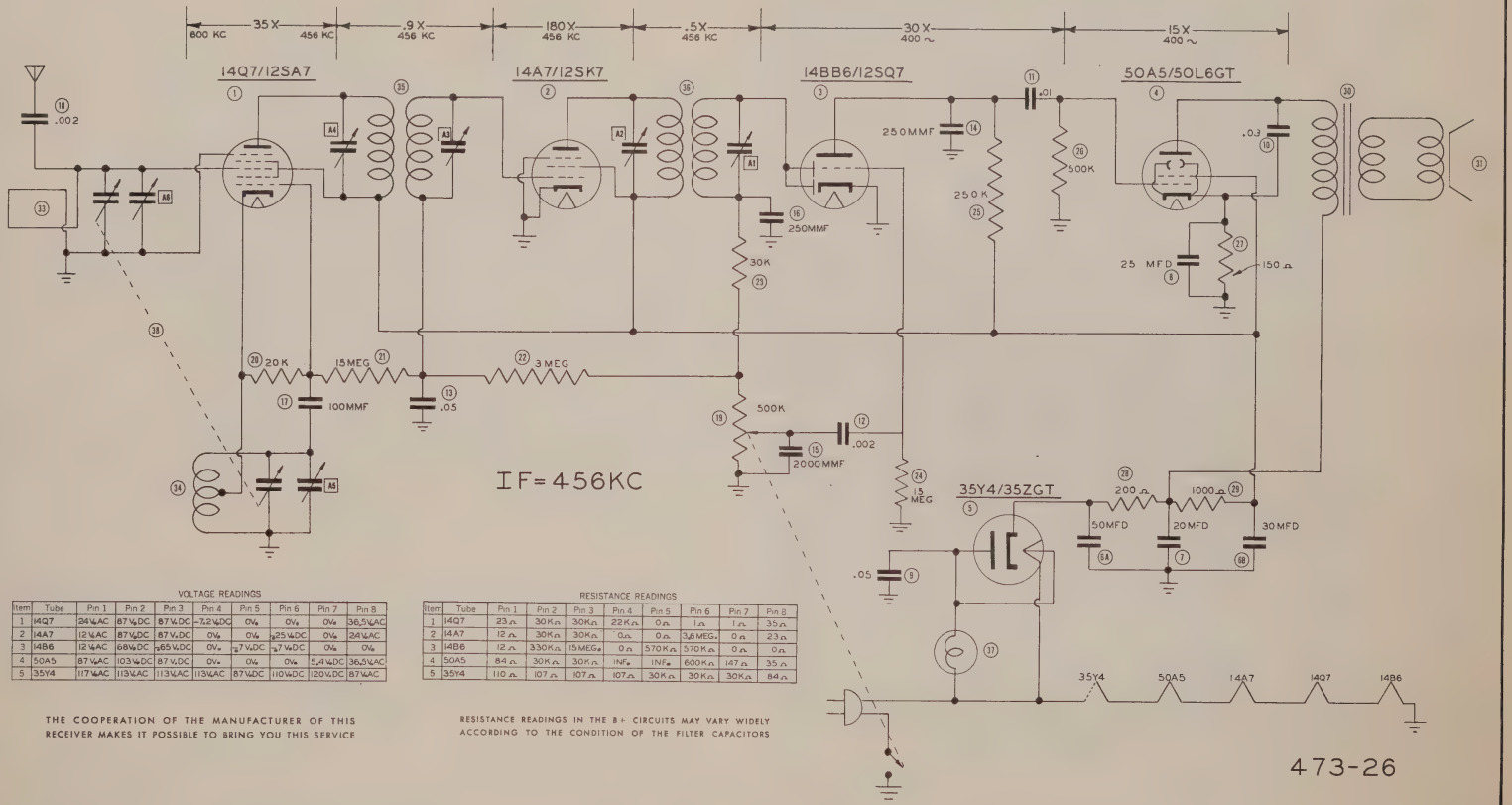


CHASSIS—BOTTOM VIEW



RAYtheon
MODEL SRB-1X

RAYtheon
MODEL SRB-1X



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	24 V AC	87 V DC	87 V DC	-7.2 V DC	0 V	0 V	0 V	36.5 V AC
2	14A7	12 V AC	87 V DC	87 V DC	0 V	0 V	25 V DC	0 V	24 V AC
3	14B6	12 V AC	68 V DC	65 V DC	0 V	7 V DC	7 V DC	0 V	0 V
4	50A5	87 V AC	103 V DC	87 V DC	0 V	0 V	0 V	5.4 V DC	36.5 V AC
5	35Y4	117 V AC	113 V AC	113 V AC	113 V AC	87 V DC	110 V DC	120 V DC	87 V AC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	23 Ω	30 KΩ	30 KΩ	22 KΩ	0 Ω	1 Ω	1 Ω	35 Ω
2	14A7	12 Ω	30 KΩ	30 KΩ	0 Ω	0 Ω	3.6 MEG.	0 Ω	23 Ω
3	14B6	12 Ω	330 KΩ	15 MEG.	0 Ω	570 KΩ	570 KΩ	0 Ω	0 Ω
4	50A5	84 Ω	30 KΩ	30 KΩ	INF.	INF.	600 KΩ	147 Ω	35 Ω
5	35Y4	110 Ω	107 Ω	107 Ω	107 Ω	30 KΩ	30 KΩ	30 KΩ	84 Ω

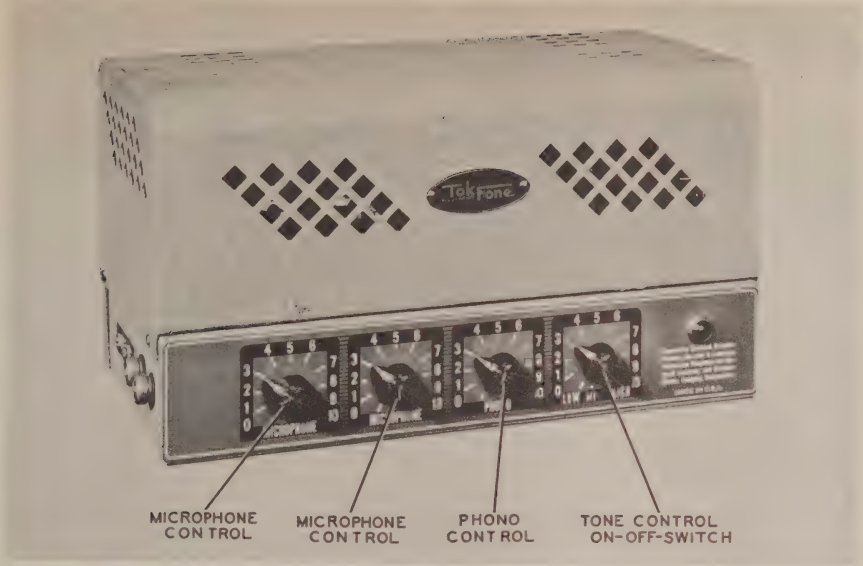
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-26

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

REGAL
TOK-FONE 20-W. AMP.



REGAL MODEL TOK FONE 20-WATT AMPLIFIER

TRADE NAME	Regal, Model Tok Fone 20-Watt Amplifier
MANUFACTURER	Regal Electronics Corp., 20 W. 20th St., New York, N.Y.
TYPE SET	AC Operated 3 Channel 20 Watt Amplifier
TUBES (SEVEN)	Types,(2) 7C7 Mic. Amp., 7C7 Audio Amp., 7N7 Driver-Phase Inverter, (2) 6L6GT Power Output, 5U4G Rectifier.
POWER SUPPLY	110-120 Volts AC RATING 1.06 Amp. @ 117 Volts AC

NOTE: ALL CONTROLS MAXIMUM CLOCKWISE.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7C7	3.4 V.AC	30 V.DC	20 V.DC	0 V.	0 V.	-55 V.DC	0 V.	3.4 V.AC
2	7C7	3.4 V.AC	35 V.DC	25 V.DC	0 V.	0 V.	-2 V.DC	0 V.	3.4 V.AC
3	7C7	3.4 V.AC	45 V.DC	45 V.DC	45 V.DC	0 V.	0 V.	165 V.DC	3.4 V.AC
4	7N7	3.4 V.AC	5.3 V.DC	130 V.DC	0 V.	0 V.	120 V.DC	5.3 V.DC	3.4 V.AC
5	6L6GT	0 V.	3.4 V.DC	425 V.DC	330 V.DC	0 V.	0 V.	3.4 V.AC	24 V.DC
6	6L6GT	0 V.	3.4 V.DC	415 V.DC	330 V.DC	0 V.	420 V.DC	3.4 V.AC	24 V.DC
7	5U4G	0 V.	425 V.DC	0 V.	380 V.AC	0 V.	380 V.AC	0 V.	425 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7C7	16 Ω	318 KΩ	1 MEG.	0 Ω	INF.	10 MEG.	0 Ω	16 Ω
2	7C7	16 Ω	350 KΩ	1 MEG.	0 Ω	INF.	10 MEG.	0 Ω	16 Ω
3	7C7	16 Ω	180 KΩ	180 KΩ	180 KΩ	INF.	400 KΩ	1500 Ω	16 Ω
4	7N7	16 Ω	1500 Ω	108 KΩ	600 KΩ	20 KΩ	130 KΩ	1500 Ω	16 Ω
5	6L6GT	INF.	16 Ω	12 KΩ	8 KΩ	230 KΩ	INF.	16 Ω	160 Ω
6	6L6GT	INF.	16 Ω	12 KΩ	8 KΩ	285 KΩ	8 KΩ	16 Ω	160 Ω
7	5U4G	INF.	12 KΩ	INF.	41 Ω	INF.	37 Ω	INF.	12 KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: REGAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Mic. Amp.	7C7	7C7	8V	
2	Mic. Amp.	7C7	7C7	8V	
3	Audio Amp.	7C7	7C7	8V	
4	Driver-Phase Inverter	7N7	7N7	8AC	
5	Power Output	6L6GT	6L6GT	7AC	
6	Power Output	6L6G	6L6G	7AC	
7	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

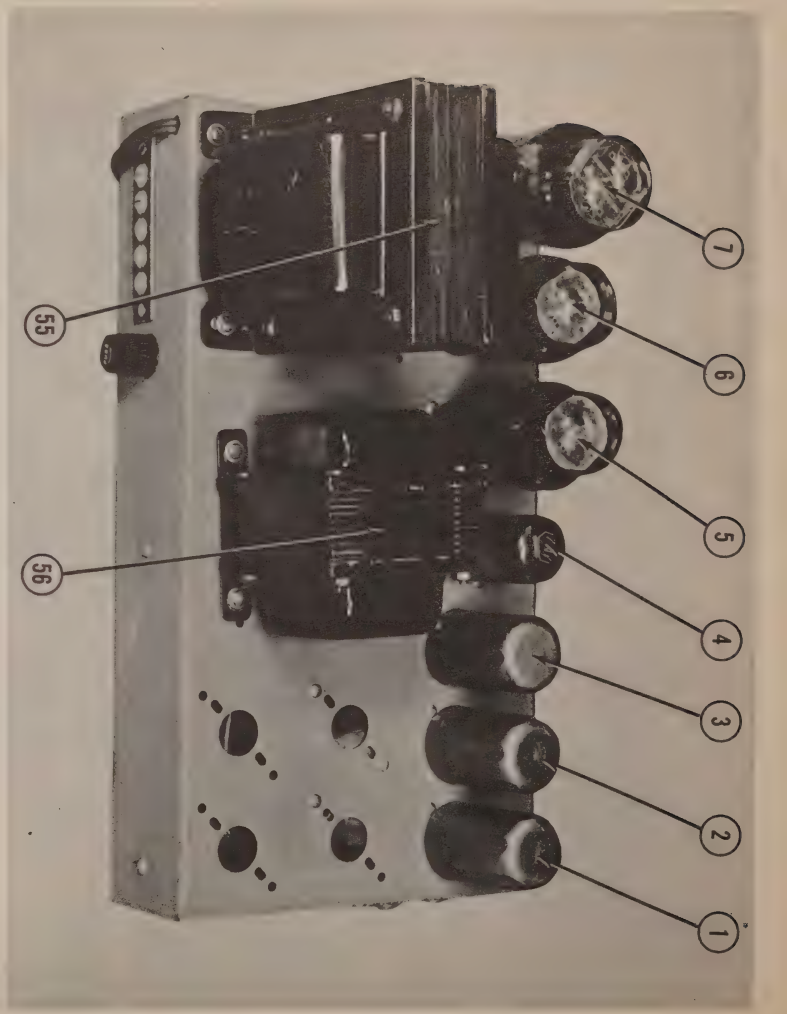
ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: REGAL PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8	32	450		2-UT-16	2-PRS450-16	2-BR1645	2-ST597	2-M-16-450	Filter
9	16	450		UT-16	PRS450-16	BR1645	ST597	M-16-450	"
10	16	450		UT-16	PRS450-16	BR1645	ST597	M-16-450	"
11	10	50		TA-510	PRS50-10	BR105	TC32	M-10-50	Cath. Bypass
12	10	50		TA-510	PRS50-10	BR105	TC32	M-10-50	" "
13	.25	400		TC-2	484-.25	DT4P25	TP430	S-4-25	Line Bypass
14	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	Audio Coupling
15	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	" "
16	.25	400		TC-2	484-.25	DT4P25	TP430	S-4-25	RF Bypass Pwr. Supp.
17	.006	600		TC-26	684-006	DT6D6	TP409	S-6-006	Tone Compensation
18	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	Audio Coupling
19	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	" "
20	.25	400		TC-2	484-.25	DT4P25	TP430	S-4-25	RF Bypass Pwr. Supp.
21	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	Audio Coupling
22	.1	600		TC-1	684-.1	DT6P1	TP418	S-6-1	Mic. Amp. Screen Bypass
23	.1	600		TC-1	684-.1	DT6P1	TP418	S-6-1	" " " "
24	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
25	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	" "
26	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	Degeneration *
27	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	" *

*Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: REGAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
28A	500KΩ	1		MR48	D13-133	M-60-Z	Tone Control
B	Shaft			Not Req.	A	Not Req.	Attach to 28A per instructions
C	Switch			M26	41	SW-A	" " " "
29A	500KΩ	1		MR48	D13-133	M-60-Z	Mike 1 - Control
B	Shaft			Not Req.	A	Not Req.	Attach to 29A per instructions
30A	500KΩ	1		MR46	D13-133	M-60-Z	Mike 2 - Control
B	Shaft			Not Req.	A	Not Req.	Attach to 30A per instructions
31A	500KΩ	1		MR48	D13-133	M-60-Z	Phono Control
B	Shaft			Not Req.	A	Not Req.	Attach to 31A per instructions

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	REGAL PART No.	IRC PART No.	
32	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 1st Mike Amp. Grid
33	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue 2nd Mike Amp. Grid
34	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. 1st Mike Amp. Screen Dropping
35	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. 2nd Mike Amp. Screen Dropping
36	250KΩ	½		BTS-270K	Red-Grn.-Yl. 1st Mike Amp. Plate Load
37	250KΩ	½		BTS-270K	Red-Grn.-Yl. 2nd Mike Amp. Plate Load
38	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. 1st Mike Amp. Decoupling
39	500KΩ	½		BTS-490K	Grn.-Blk.-Yl. 2nd Mike Amp. Decoupling
40	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Phono Amp. Decoupling
41	1500Ω	½		BTS-1500	Br.-Grn.-Red AF Cathode
42	100KΩ	½		BTS-100K	Br.-Blk.-Yl. AF Plate Load
43	1500Ω	½		BTS-1500	Br.-Grn.-Red Driver Cathode
44	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Driver Plate Load
45	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Phase Inverter Plate Load
46	20KΩ	½		BTS-22K	Red-Blk.-Or. Phase Inverter Grid
47	250KΩ	½		BTS-270K	Red-Grn.-Yl. Output Grid
48	250KΩ	½		BTS-270K	Red-Grn.-Yl. Output Grid
49	50KΩ	1		BTA-47K	Grn.-Blk.-Or. Voltage Dropping
50	50KΩ	1		BTA-47K	Grn.-Blk.-Or. " "
51	10KΩ	1		BTA-10K	Br.-Blk.-Or. " "
52	35Ω	5		AB-50	Filament Shunt-See Note 1
53	35Ω	5		AB-50	" "
54A	2500Ω				Filter
B	10KΩ				Voltage Dropping
C	175Ω				Output Cathode

Note 1 - On IRC replacement set slider @ 35Ω from one end.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	REGAL PART No.	STANCOR PART No.	THORDARSON PART No.	
55	117V AC @ 1.06A	760V CT @.130A	5.5V AC @ 2.8A	6.9V AC @ 3.1A		P-4081T	T22R33T	Drill new mounting holes.

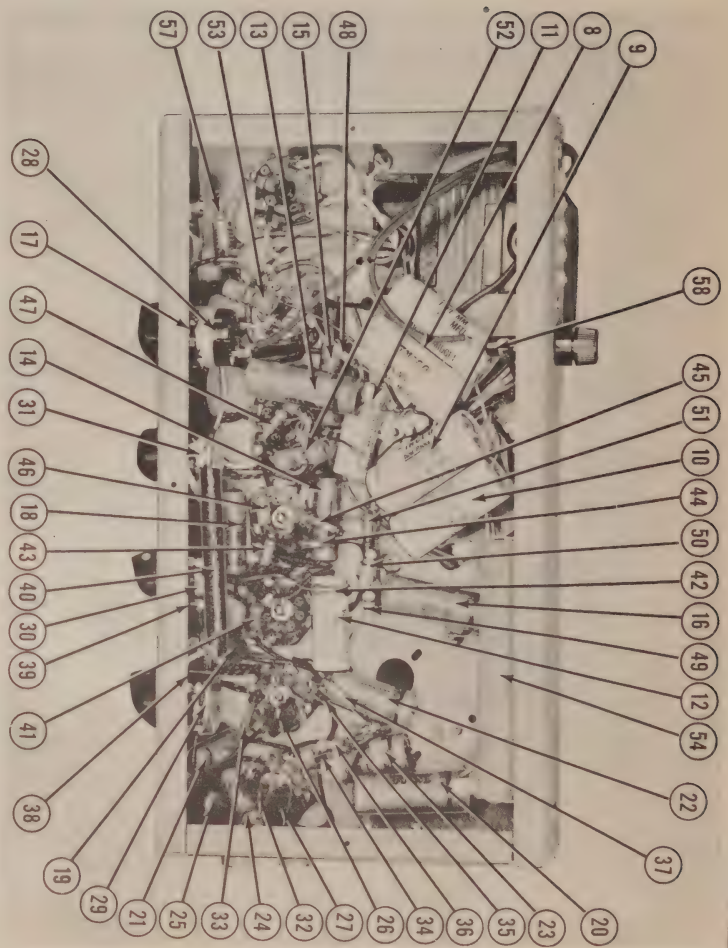
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		REGAL PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
56	10000Ω CT	4Ω 8Ω 250Ω 500Ω	190Ω CT	.3Ω .4Ω 25Ω 32Ω		A-3311	T22S64		

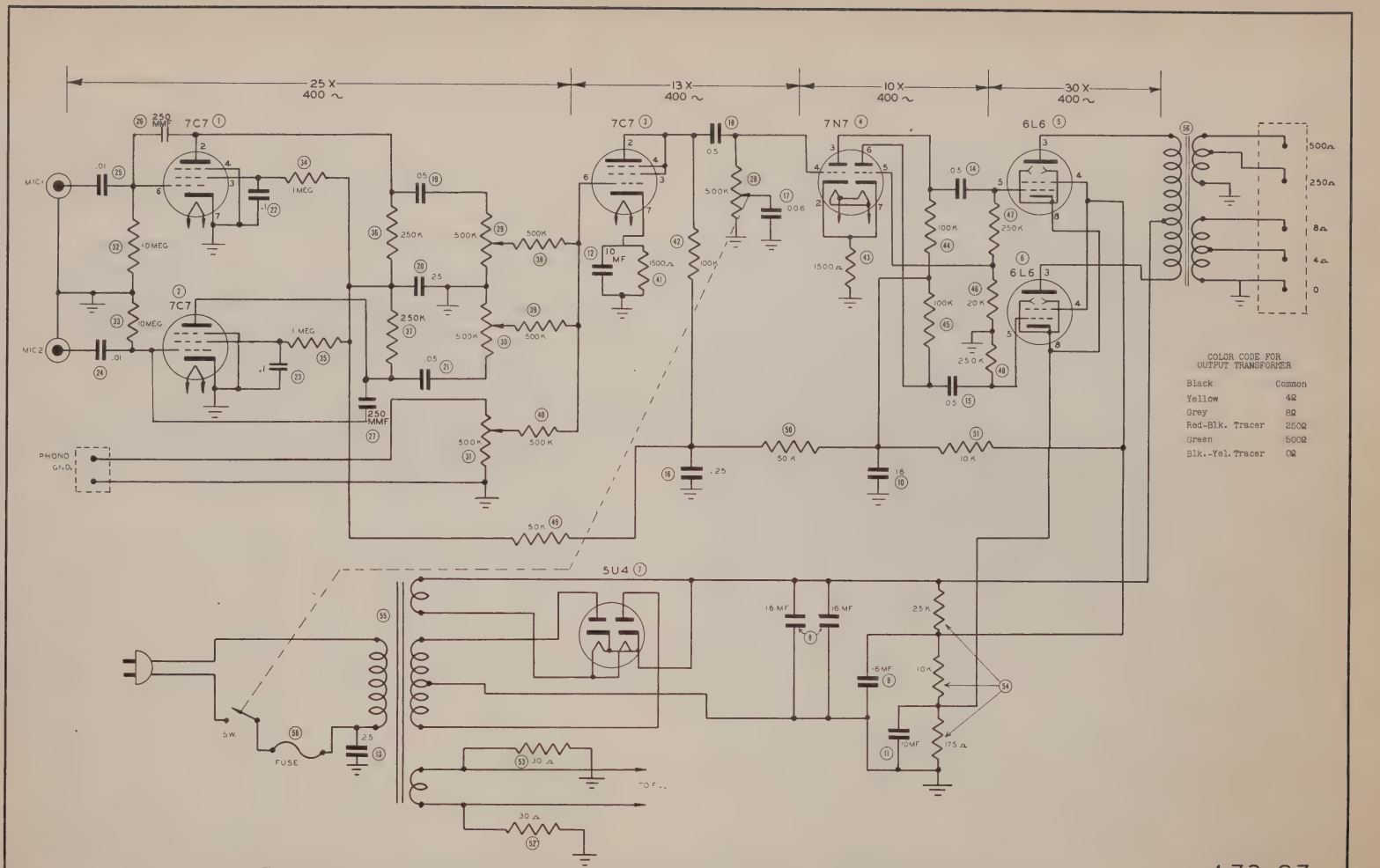
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					REGAL PART No.		
57	Screw	6.8	.15	Brown	#40		

CHASSIS—BOTTOM VIEW



REGAL
TOK-FONE 20-W. AMP.



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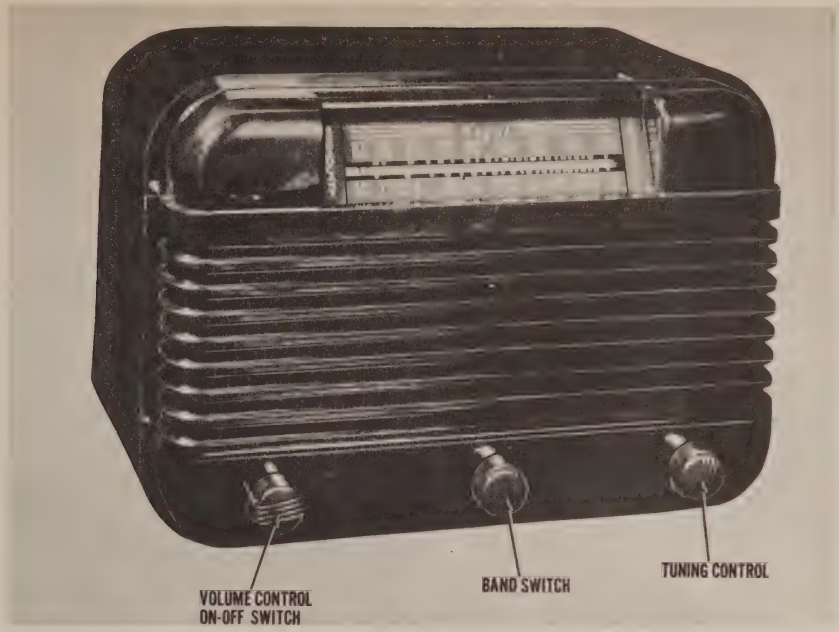
REGAL
MODELS W900, W901



REGAL
MODELS W900, W901

REGAL MODEL W901

TRADE NAME	Regal Models W900, W901
MANUFACTURER	Regal Electronics Corp., 20 West 20th St., New York, N.Y.
TYPE SET	AC-DC 2 Band Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SH7 RF Amp., 12SA7 Converter, 12SK7 IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier, or Types 14A7, 14Q7, 14A7, 14B6, 35A5, 35Y5 respectively.
POWER SUPPLY	110-120 Volts AC-DC RATING .260 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1650KC SHORT WAVE 7.5 - 18.5MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer 1-3/4 inches from left end of dial backplate. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of front section of variable. Low side to chassis.	455KC	BC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
.1 MFD.	High side to ext. ant. lead. Low side to chassis.	"	"	Variable fully closed.	"	A5	Adjust for minimum output
400Ω	"	18.5MC	SW	Variable fully open.	"	A6	Adjust for maximum output
200MMFD	"	1650KC	BC	"	"	A7	" " " "
200MMFD	"	1450KC	"	Tune for maximum output.	"	A8	" " " "
400Ω	"	17MC	SW	"	"	A9	" " " "
400Ω	"	8.5MC	"	"	"	A10	Rock variable and adjust for maximum output. Repeat last two steps until no further improvement is made.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: REGAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SH7 or 14A7	12SH7 or 14A7	8BK 8V	12SG7 or 12SK7 alternate Lock-in
2	Converter	12SA7 or 14Q7	12SA7 or 14Q7	8AD 8AL	Lock-in
3	IF Amp.	12SK7 or 14A7	12SK7 or 14A7	8N 8V	Lock-in
4	Det.-AVC-AF	12SQ7GT or 14B6	12SQ7GT or 14B6	8Q 8W	Lock-in
5	Power Output	35L6GT or 35A5	35L6GT or 35A5	7AC 6AA	50L6GT Alternate Lock-in
6	Rectifier	35Z5GT or 35Y4	35Z5GT or 35Y4	6AD 5AL	Lock-in

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: REGAL PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	60101	TA-550	PRSA150-40-40	EZ5S15	2N521	DSB-2x50-150	Filter - Red
B	50	150							" - Green
8	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Rect. Bypass
9	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Output Plate Bypass
10	.01	600		TC-11	684-01	DT6S1	TP410	S-6-01	Audio Coupling
11	.006	600		TC-26	684-006	DT6D6	TP409	S-6-006	" "
12	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
13	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	RF Bypass Pwr. Supp.
14	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Conv. Screen Bypass
15	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Ant. Coupling
16	250	500		1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Audio Plate Bypass
17	100	500		1FM-31	1468-0001	5W5T1	MC235	M0.5-31	IF Bypass Vol. Cont.
18	100	500		1FM-31	1468-0001	5W5T1	MC235	M0.5-31	IF Bypass Diode
19	100	500		1FM-31	1468-0001	5W5T1	MC235	M0.5-31	Osc. Grid Capacitor
20	250	500		1FM-325	1468-00025	5W5T25	MC240	M0.5-325	RF Coupling

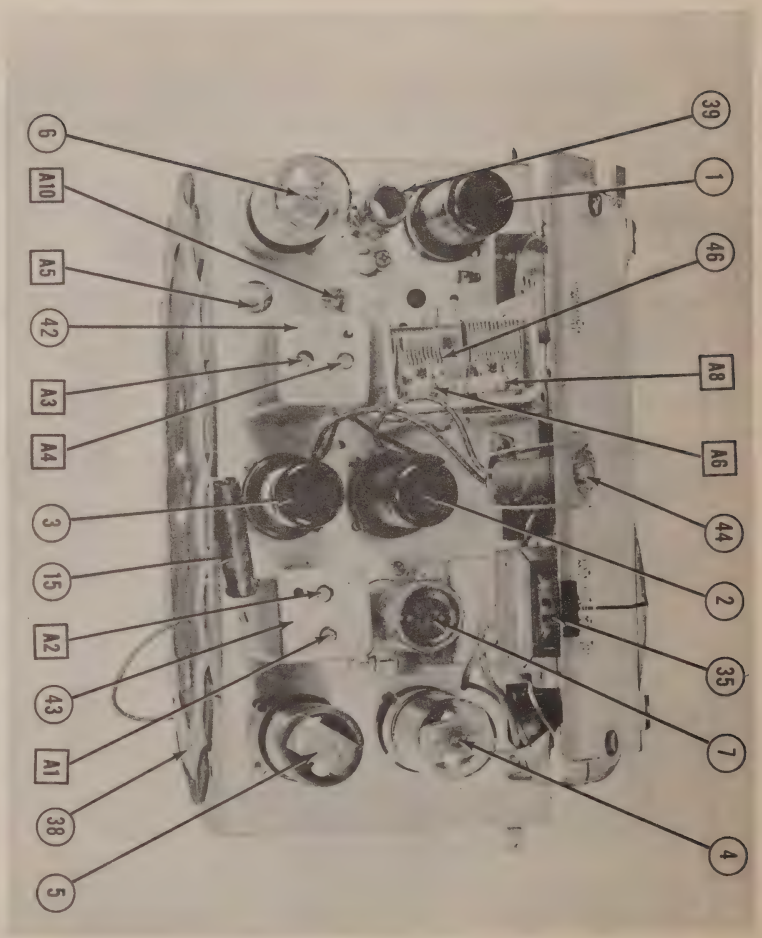
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: REGAL PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21A	500KΩ	1	20-101	MR46	D13-133	M-60-Z	Volume Control-Late Production
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 21A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
21A	1 Meg.	1		MR53	D13-137	M-63-Z	Volume Control-Early production
B	Shaft			Not Req.	A	Not Req.	Attach to 21A per instructions
C	Switch			M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: REGAL PART No.	IRC PART No.	IDENTIFICATION CODES
22	4700Ω	½		BTS-4700	Yl.-Vi.-Red RF Plate Load
23	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Converter Grid
24	22KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
25	1000Ω	½		BTS-1000	Br.-Blk.-Red Converter Screen Dropping
26	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
27	50KΩ	½		BTS-47K	Grn.-Blk.-Or. Diode RF Filter
28	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
29	250KΩ	½		BTS-270K	Red-Grn.-Yl. AF Plate Load
30	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
31	150Ω	2		BW-2-150	Br.-Grn.-Br. Output Cathode
32	1000Ω	2		BT-2-1000	Br.-Blk.-Red Filter
33	15Ω	2		BW-2-15	Br.-Grn.-Blk. Rectifier Ballast
34	250KΩ	½		BTS-270K	Red-Grn.-Yl. AVC Network

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		REGAL PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
35	2500Ω	3.4Ω	240Ω	.6Ω		A-3876	T22S45		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			REGAL PART No.	JENSEN PART No.		
	FIELD	VC IMP.		ST-107		
36	PM	3.4Ω		Mod. P5-V		
	CONE DIA.	VC DIA.				
37	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

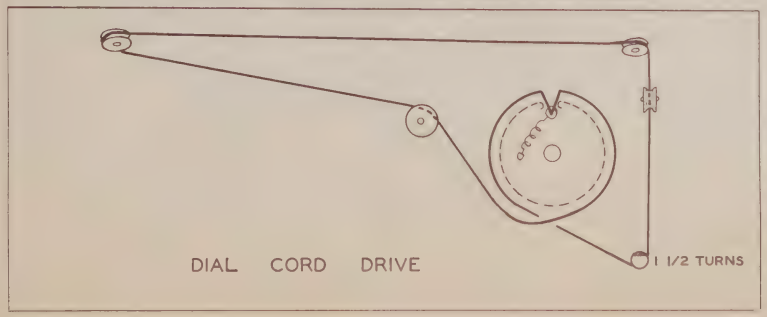
ITEM No.	USE	DC RES.		REPLACEMENT DATA			
		PRI.	SEC.	REGAL PART No.	MEISSNER PART No.		
38	Loop Ant.	0Ω	1.3Ω	30-103			
39	SW Ant. Coil	.5Ω	0Ω	30-109			
40A	BC Osc. Coil		3Ω	30-108			40A & 40B wound on same form
B	SW Osc. Coil		0Ω				
41	Wave Trap		51Ω	30-106			
42	Input IF	16Ω	16Ω	30-104	16-6658		
43	Output IF	16Ω	16Ω	30-105	16-6660		

DIAL LIGHT

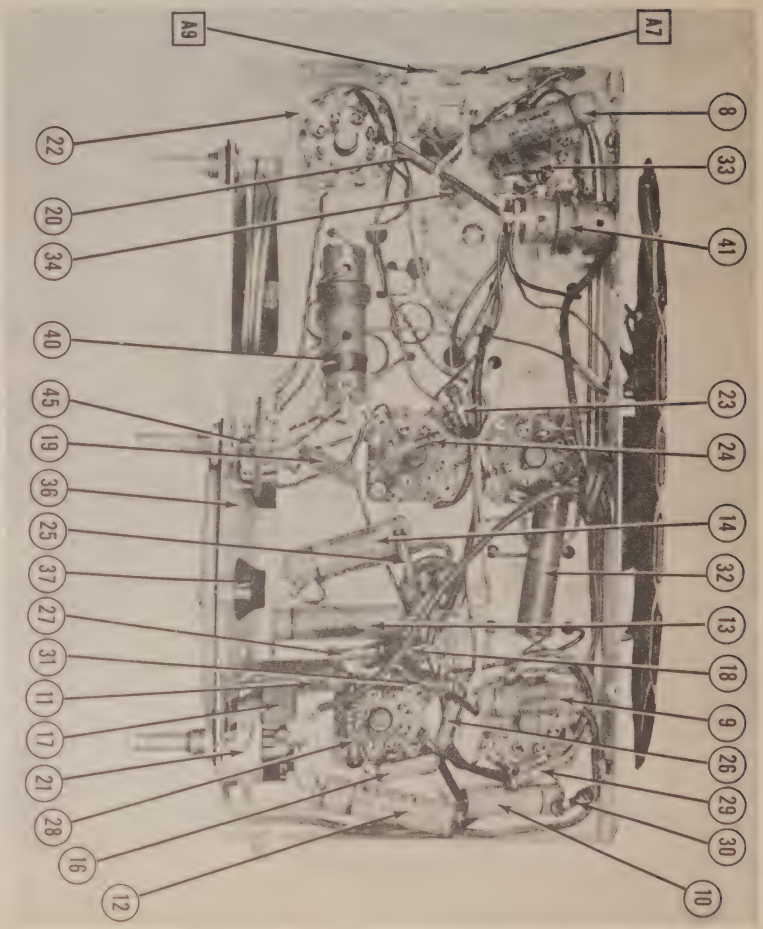
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					REGAL PART No.		
44	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

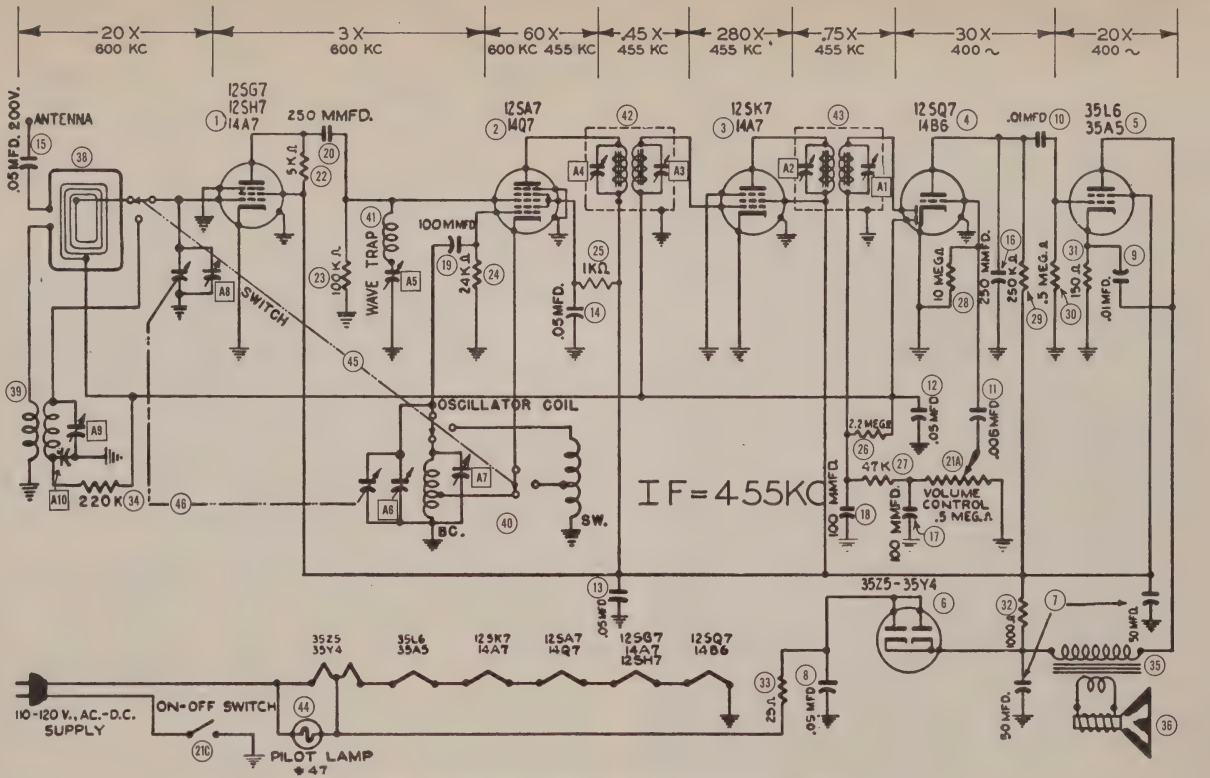
ITEM No.	PART NAME	REGAL PART No.	NOTES
45	Band Switch	95-102	
46	2 Gang Var. Cap.	40-101	(22-470 MMF, 28-210 MMF)



CHASSIS—BOTTOM VIEW



REGAL MODELS W900, W901



NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SH7	0V.	26 V.AC	0V.	-45V.DC	0V.	87 V.DC	38V.AC	70V.DC
2	12SA7	0V.	26 V.AC	87 V.DC	80V.DC	-4.8V.DC	0V.	13 V.AC	0V.
3	12SK7	0V.	38 V.AC	0V.	-45V.DC	0V.	87 V.DC	50 V.AC	87 V.DC
4	12SQ7GT	0V.	-65V.DC	0V.	-6 V.DC	-6V.DC	62 V.DC	13 V.AC	0V.
5	35L6GT	117 V.DC	87 V.AC	109 V.DC	87 V. DC	0V.	-45 V.DC	50 V.AC	5.2 V.DC
6	35Z5GT	0V.	117 V.AC	113 V.AC	0V.	112 V.AC	0V.	87 V.AC	117 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SH7	0Ω	23Ω	0Ω	2.5 MEG.	0Ω	35 KΩ	34Ω	40 KΩ
2	12SA7	0Ω	23Ω	35 KΩ	36 KΩ	22 KΩ	.4Ω	11Ω	124 KΩ
3	12SK7	0Ω	34Ω	0Ω	2.5 MEG.	0Ω	35 KΩ	45Ω	35 KΩ
4	12SQ7GT	0Ω	10 MEG.	0Ω	510 KΩ	510 KΩ	285 KΩ	11Ω	0Ω
5	35L6GT	35 KΩ	75Ω	35 KΩ	35 KΩ	500 KΩ	2.5 MEG.	45Ω	135Ω
6	35Z5GT	INF.	100Ω	97Ω	INF.	110Ω	INF.	75Ω	35 KΩ

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-28

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE
MODELS 6051 (CH. 110-451)
6052 (CH. 110-542)

SILVERTONE
MODELS 6051 (CH. 110-451)
6052 (CH. 110-542)

TRADE NAME	Silvertone, Models 6051 (Ch. 110.451), 6052 (Ch. 110.452)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	AC-DC Operated Superheterodyne Receiver - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7GT RF Amp., 12SA7 Converter, 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	525-1740KC RATING .240 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To adjust pointer turn variable fully closed and set pointer to last reference mark at low freq. end of dial. Use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and B-. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.05 MFD	High side to stator of rear section of variable. Low side to B-.	455KC	Variable fully closed.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
	Loop	1500KC	1500KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of set. Adjust for maximum output.
	"	"	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7GT	12SK7GT	8N	
2	Converter	12SA7GT	12SA7GT	8AD	
3	IF Amp.	12SK7GT	12SK7GT	8N	
4	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT.	REPLACEMENT DATA: SILVERTONE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	A2068-D	TA-440	PRSA150-40-	BRD4415	2N511	DSB-305	Filter - Red *
B	40	150			40				" - Blue
C	25	25		TA-25	PR25-25	5R252.	TC26		Cath. Bypass - Yellow
7A	40	150	A2065	TA-440	PRSA150-40-	BRD4415	2N511	DSB-2x40-150	Filter - Red 1
B	40	150			40				" - Green
8	.05	600		TC-15	484-05	DT6S5	TP415	S-6-05	Line Filter
9	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
10	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
11	.2	400		TC-2	484-.2	DT4P2	TP429	S-4-2	RF Bypass Pwr. Supp.
12	.002	600		TC-22	684-002	DT6D2	TP405	S-6-002	Audio Coupling
13	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
14	.15	400		TC-2	484-.15	DT4P2	TP429	S-4-2	Line Isolation *
15	.005	600		TC-25	684-005	DT6D5	TP408	S-6-005	Ant. Coupling
16	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	Audio Plate Bypass
17	250	500		1FM-325	1468-00025	5W5T25	MC240	MO.5-325	IF Bypass Vol. Cont.
18	50	500		1FM-45	1468-00005	5W5Q5	MC225	MO.5-45	Osc. Grid Capacitor
19	100	500		1FM-31	1468-0001	5W5T1	MC235	MO.5-31	RF Coupling

*Not used in Model 6051
†Use in Model 6051.

CONTROLS

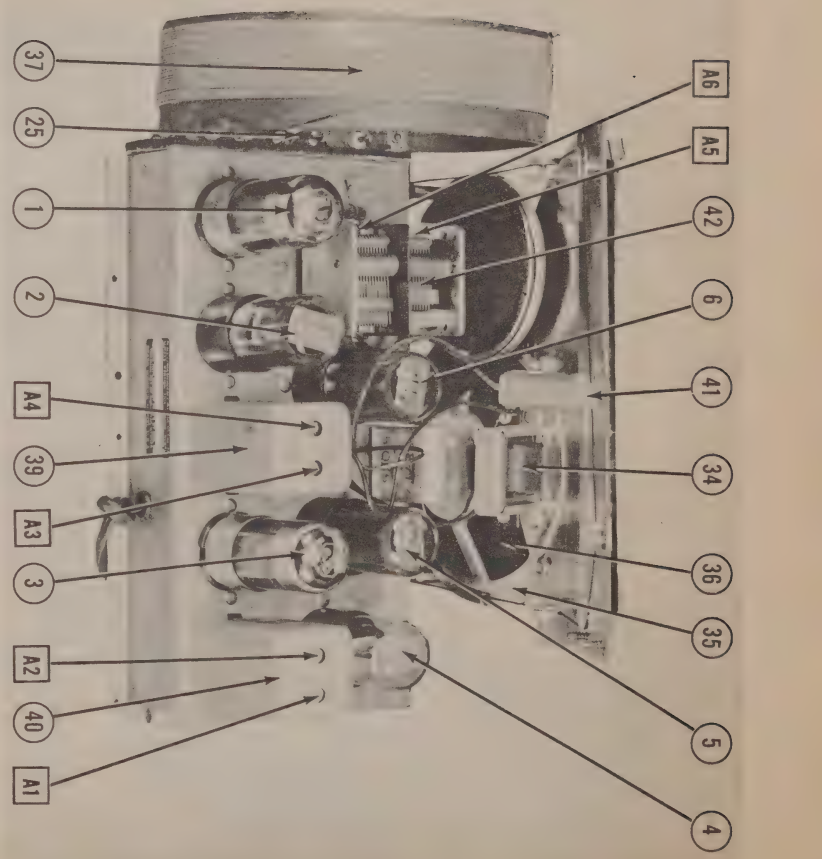
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20	500KΩ	1	A2463				Volume Control and Switch

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
21	270KΩ	½		BTS-270K	Red-Vi.-Yl. Line Isolation - See Note 1
22	4700Ω	½		BTS-4700	Yl.-Vi.-Red RF Plate Load
23	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Converter Grid
24	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
25	1000Ω	½		BTS-1000	Br.-Blk.-Red Antenna Loading
26	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
27A	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid - See Note 2
B	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid - See Note 3
28	330KΩ	½		BTS-330K	Or.-Blk.-Yl. AF PlateLLoad
29	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
30	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
31	2200Ω	2		BT-2-2200	Red-Red-Red Filter
32	33Ω	½		BW-½-33	Or.-Or.-Blk. Rectifier Ballast
33	220Ω	½		BW-½-220	Red-Red-Br. Pilot Light Shunt

Note 1 - Not used in Model 6051.
Note 2 - Used in Model 6052 only.
Note 3 - Used in Model 6051 only.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
34A	3400Ω	3.2Ω	260Ω	.7Ω	A1330	A-3876‡	T22846‡		‡Bend mounting tabs down, file out slots and mount on original bracket. Used in Model 6062.
B	3400Ω	3.0Ω	260Ω	.8Ω	A1322	A-3876**	T22845**		**Drill new mounting holes. Used in Model 6051.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	SILVERTONE PART No.	JENSEN PART No.		
35A	PM	3.2Ω	A5871	ST-105 $ Mod. P5-X		Used in Model 6052
B	PM	3.0Ω	A5855	ST-106 $ Mod. P5-W		Used in Model 6051
	CONE DIA.	VC DIA.				
36A	4-5/8"	¾"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			
B	4-5/8"	¾"				

$Drill new mounting holes.

R F COILS

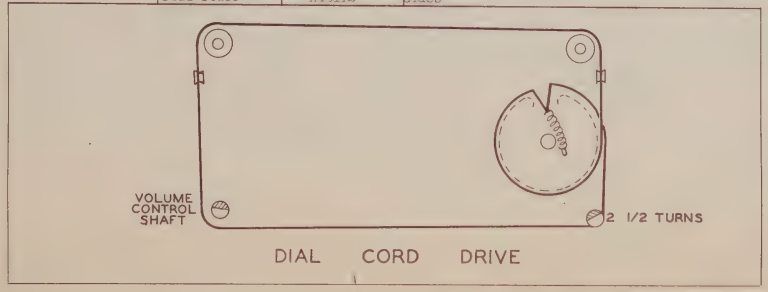
ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	
37	Loop Ant.	.2Ω	1.4Ω	A28147		
38	Osc. Coil	1.1Ω	8.7Ω	A28160	14-1040	
39	Input IF	20Ω	20Ω	3322	16-3656	
40	Output IF	16.7Ω	18.9Ω	3529	16-3660	

DIAL LIGHT

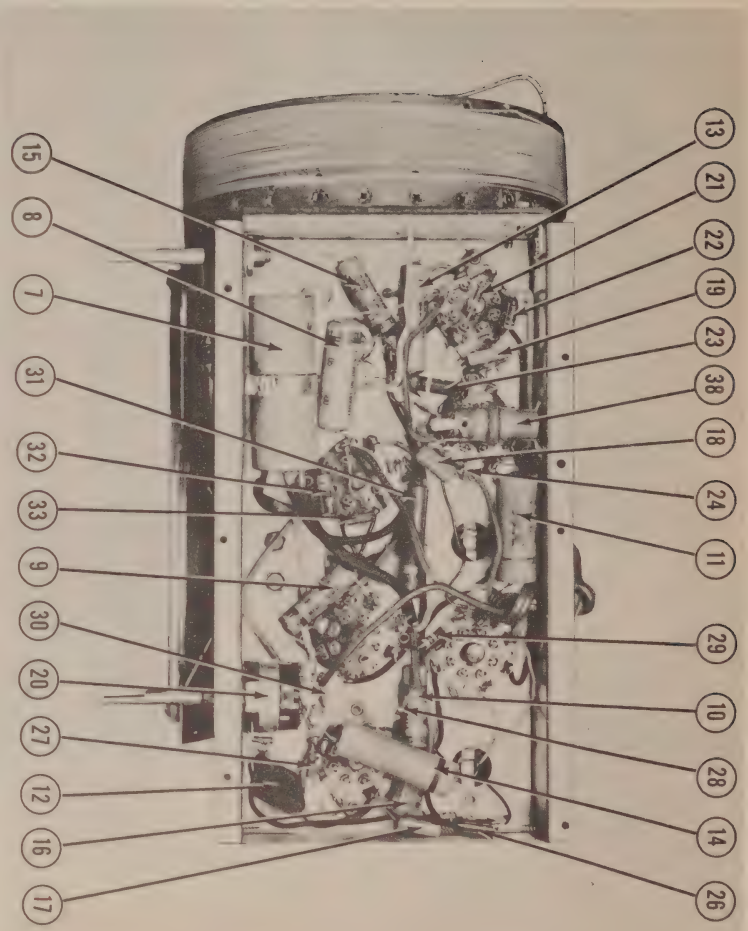
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					SILVERTONE PART No.		
41	Bayonet	6-8	0.15	Brown			Type 47

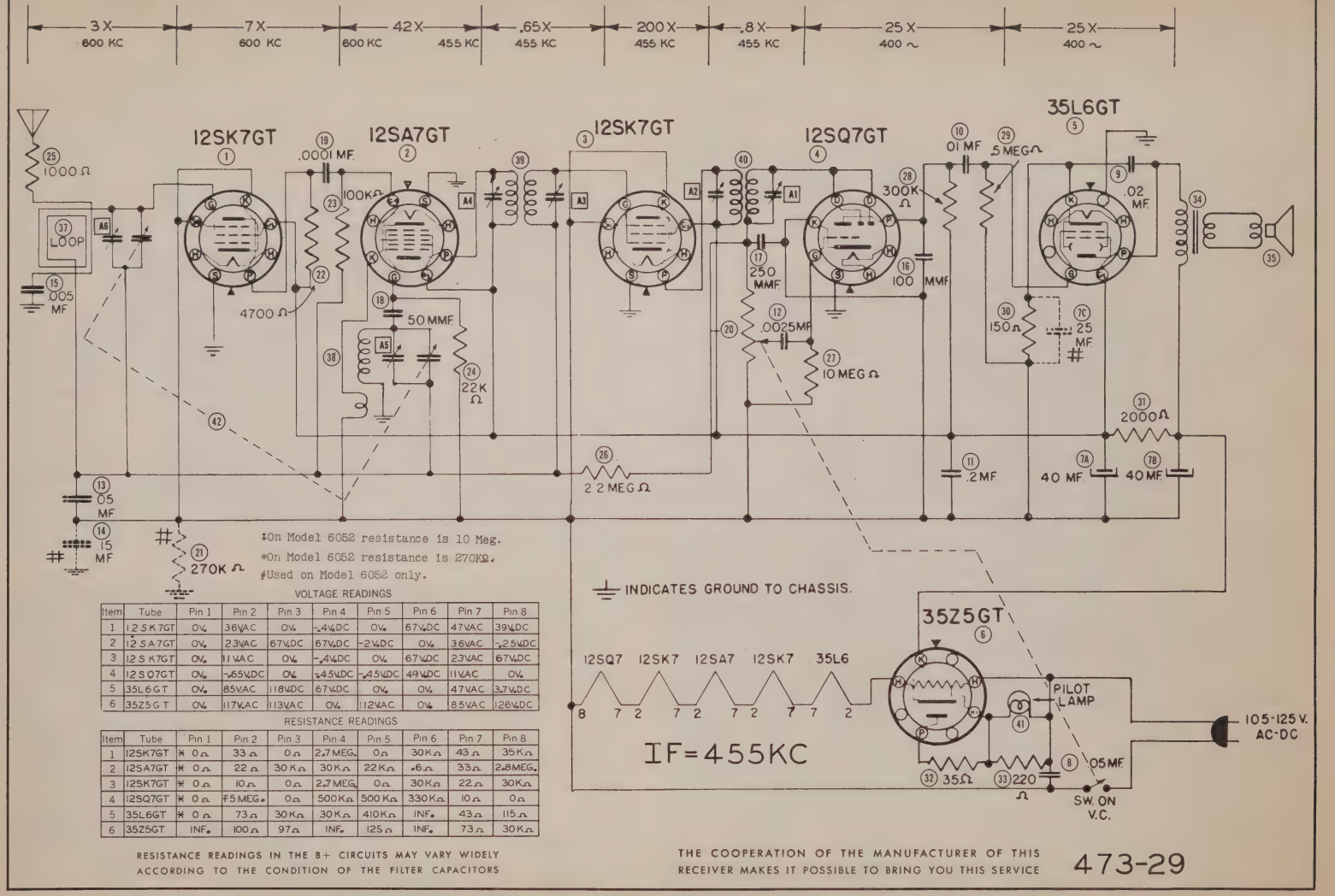
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
42	2 Gang Var. Cap.	A1652	(20-449 MMF, 27-188 MMF)
	Dial Pointer	A4137	
	Dial Scale	A4011Z	Glass



CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	0V.	36VAC	0V.	-.4VDC	0V.	67VDC	47VAC	39VDC
2	12SA7GT	0V.	23VAC	67VDC	67VDC	-2VDC	0V.	36VAC	-2.5VDC
3	12SK7GT	0V.	11VAC	0V.	-.4VDC	0V.	67VDC	23VAC	67VDC
4	12SQ7GT	0V.	-.65VDC	0V.	-.45VDC	-.45VDC	49VDC	11VAC	0V.
5	35L6GT	0V.	85VAC	118VDC	67VDC	0V.	0V.	47VAC	3.7VDC
6	35Z5GT	0V.	117VAC	113VAC	0V.	112VAC	0V.	85VAC	126VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7GT	* 0Ω	33Ω	0Ω	2.7MEG.	0Ω	30KΩ	43Ω	35KΩ
2	12SA7GT	* 0Ω	22Ω	30KΩ	30KΩ	22KΩ	.6Ω	33Ω	2.8MEG.
3	12SK7GT	* 0Ω	10Ω	0Ω	2.7MEG.	0Ω	30KΩ	22Ω	30KΩ
4	12SQ7GT	* 0Ω	‡5MEG.	0Ω	500KΩ	500KΩ	330KΩ	10Ω	0Ω
5	35L6GT	* 0Ω	73Ω	30KΩ	30KΩ	410KΩ	INF.	43Ω	115Ω
6	35Z5GT	INF.	100Ω	97Ω	INF.	125Ω	INF.	73Ω	30KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

473-29

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE
MODEL 6072 (CH. 110-454)

SILVERTONE MODEL 6072

TRADE NAME	Silvertone Model 6072 (Ch. 110.454)
MANUFACTURER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	AC Operated Combination Radio-Phono with Self Contained Loop Antenna
TUBES (FIVE)	Types, 6SA7GT Converter, 6SK7GT IF Amp., 6SQ7GT Det.-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	540-1700KC RATING .356 Amps. @ 117V AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set the pointer turn variable fully closed and set pointer to last reference mark at low freq. end of dial. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to pin 8 (grid) of 6SA7. Low side to chassis.	455KC	Variable fully closed.	Across voice coil.	A1,A2, A3,A4.	Adjust for maximum output.
	Loop	1720KC	Variable fully open.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
	"	1500KC	Tune for maximum output.	"	A6	"

DISASSEMBLY INSTRUCTIONS

1. Remove the two push-on type control knobs and felt washers.
2. Remove four clips from back cover and remove cover.
3. Disconnect phono-motor plug and pickup plug from chassis.
4. Disconnect radio-phono switch plug and speaker plug from chassis.
5. Remove four hex head machine screws and washers holding chassis to cabinet. Remove chassis from cabinet.
6. Remove four machine screws from speaker. Remove speaker from cabinet.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6SA7GT	6SA7GT	8AD	
2	IF Amp.	6SK7GT	6SK7GT	8N	
3	Det.-AVC-AF	6SQ7GT	6SQ7GT	8Q	
4	Power Output	6V6GT	6V6GT	7AC	
5	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	20	350	A20102	UT-201	PRV450-20-20	BRD2235	ST597	DY-3x20-450†	Filter - Green
B	16	350		TU-1616	PRS350-16	BR1635	25569		" - Red
C	16	350							" - blue
7	16	450	A20109	UT-16	PRS450-16	BR1645	ST597	M-16-450	"
8	25	25	A20108	TA-25	PRS25-25	BR252A	TC26	M-25-25	Output Cath. Bypass
9	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	Line Bypass
10	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Output Plate Bypass
11	.01	400		TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
12	.005	400		TC-25	484-005	DT6D5	TP408	S-6-005	Tone Compensation
13	.005	400		TC-25	484-005	DT6D5	TP408	S-6-005	Audio Coupling
14	.005	400		TC-25	484-005	DT6D5	TP408	S-6-005	Tone Compensation
15	.05	600		TC-15	684-05	DT6S5	TP415	S-6-05	Screen Bypass
16	.1	400		TC-1	484-.1	DT4P1	TP428	S-4-1	RF Bypass Pwr. Supp.
17	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
18	.005	400		TC-25	484-005	DT6D5	TP408	S-6-005	Tone Compensation
19	470	500		1FM-35	1468-0005	5W5T5	MC245	M0.5-35	Audio Plate Bypass
20	220	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	IF Bypass Vol. Cont.
21	220	500		1FM-32	1468-0002	5W5T2	MC237	M0.5-32	IF Bypass Diode
22	47	500		1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Osc. Grid Capacitor

†Use mounting clip.

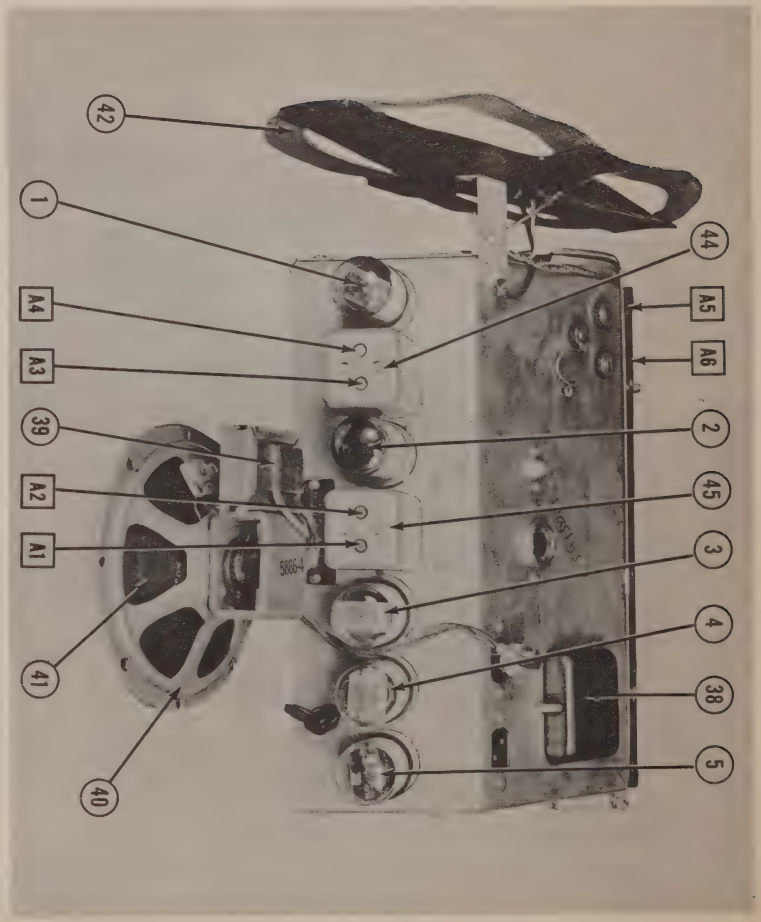
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23A	500KΩ	1	A2466	MRT427	D13-133X	T-78	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 23A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
24	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
25	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
26	8200Ω	2		BT-2-8200	Gray-Red-Red Voltage Dropping
27	68KΩ	½		BTS-68K	Blue-Gray-Or. Diode RF Filter
28	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
29	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
30	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
31	330Ω	1		BT-½-330	Or.-Or.-Br. Output Cathode
32	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Tone Compensation
33	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Series Phono.
34	68KΩ	½		BTS-68K	Blue-Gray-Or. Tone Compensation
35	68KΩ	½		BTS-68K	Blue-Gray-Or. " "
36	400Ω	2		BW-2-390	Yl.-Blk.-Br. Filter
37	400Ω	2		BW-2-390	Yl.-Blk.-Br. "

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	SILVERTONE PART No.	STANCOR PART No.	THORDARSON PART No.	INSTALLATION NOTES
38	117V AC @ .350A	490V AC @ .356A	5.4V AC @ 2.0A		A1020		T22R01‡	‡Drill new mounting holes.

TRANSFORMER (OUTPUT)

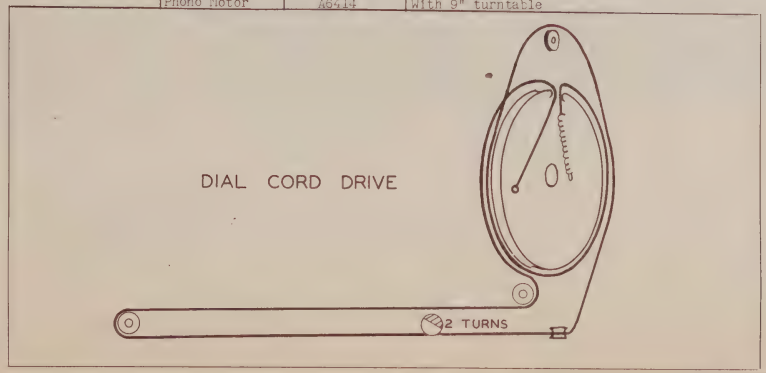
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
39	5300Ω	2.9Ω	450Ω	.55Ω	Part of A5866-4	A-3677*	T22S46*		*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

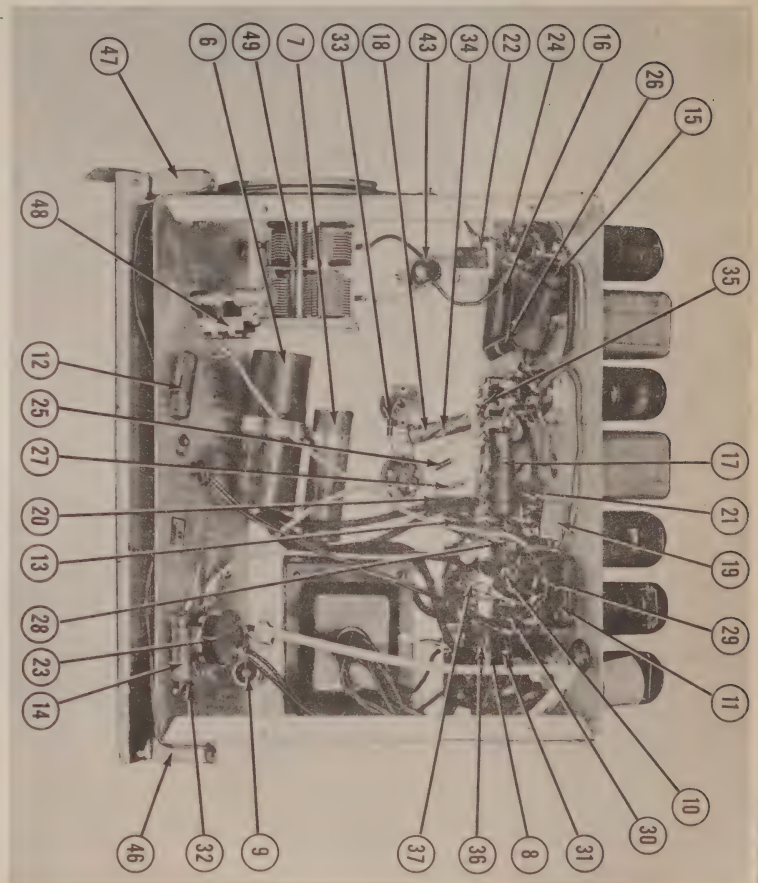
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SILVERTONE PART No.	JENSEN PART No.		
40	FIELD	VC IMP.		ST-105		
	PM	2.9Ω	A5866-4	Mod. P8-X		
41	CONE DIA.	VC DIA.				
	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

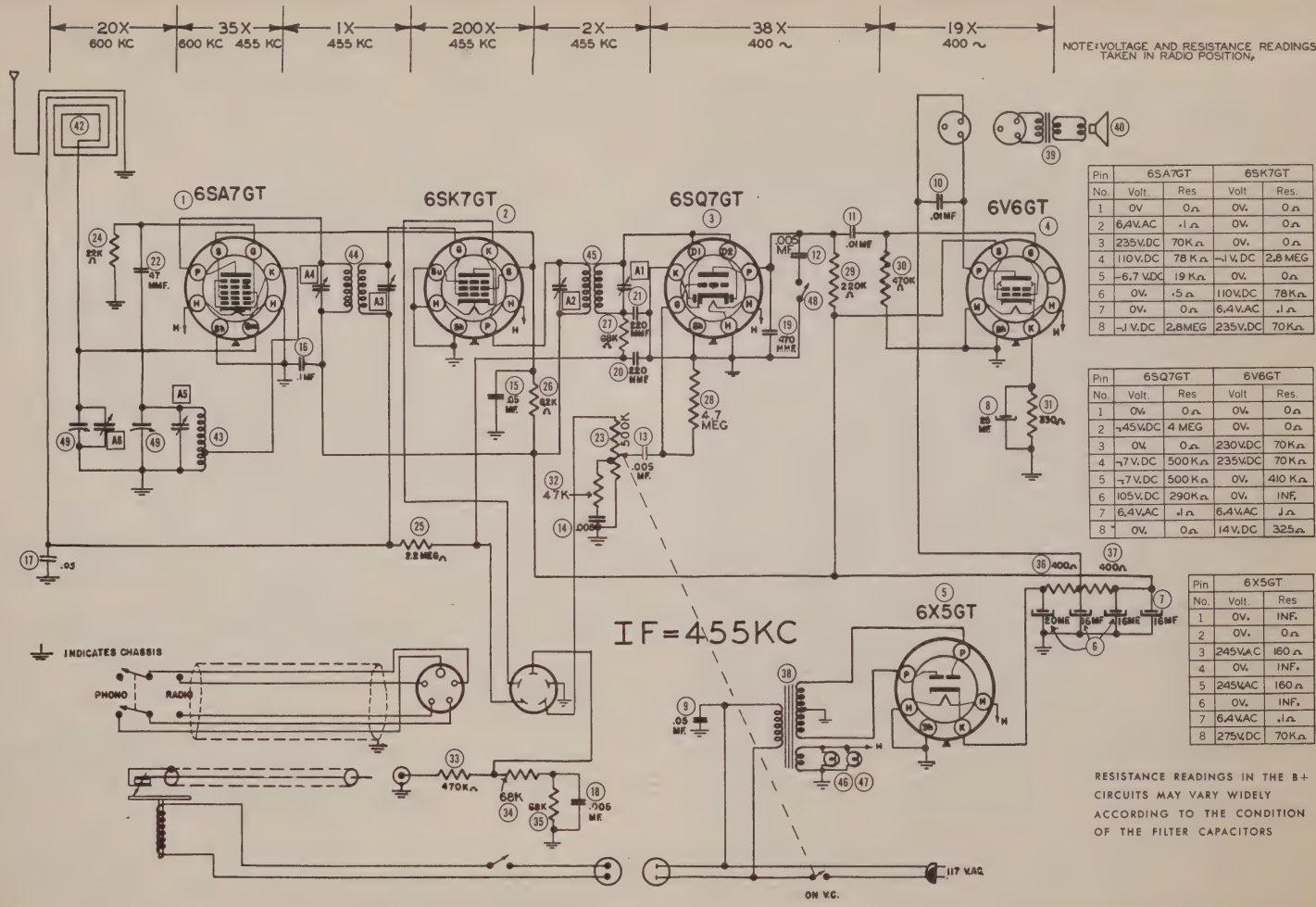
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
48	Tone Switch	A3822	
49	2 Gang Var. Cap.	A1693	(13-438 MMF, 22-200 MMF)
	Switch	A3824	Radio-Phono
	Switch	A3825	Phono-Motor
	Dial Scale	A40103	
	Pointer	A4149	
	Phono Motor	A6414	With 9" turntable



CHASSIS—BOTTOM VIEW





Pin No.	6SA7GT Volt.	6SA7GT Res	6SK7GT Volt	6SK7GT Res.
1	0V	0Ω	0V.	0Ω
2	6.4V.AC	.1Ω	0V.	0Ω
3	235V.DC	70KΩ	0V.	0Ω
4	110V.DC	78 KΩ	-1 V. DC	2.8 MEG
5	-6.7 V.DC	19 KΩ	0V.	0Ω
6	0V.	.5Ω	110V.DC	78KΩ
7	0V.	0Ω	6.4V.AC	.1Ω
8	-1 V.DC	2.8MEG	235V.DC	70KΩ

Pin No.	6SQ7GT Volt.	6SQ7GT Res	6V6GT Volt	6V6GT Res.
1	0V.	0Ω	0V.	0Ω
2	-45V.DC	4 MEG	0V.	0Ω
3	0V.	0Ω	230V.DC	70KΩ
4	-7 V.DC	500 KΩ	235V.DC	70KΩ
5	-7 V.DC	500 KΩ	0V.	410 KΩ
6	105V.DC	290KΩ	0V.	INF.
7	6.4V.AC	.1Ω	6.4V.AC	.1Ω
8	0V.	0Ω	14V.DC	325Ω

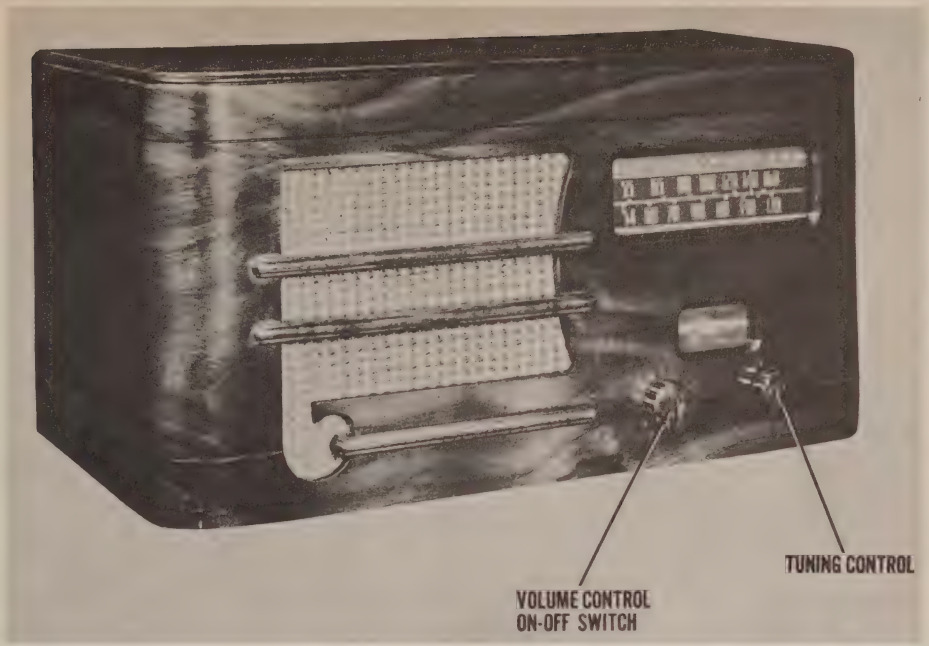
Pin No.	6X5GT Volt.	6X5GT Res
1	0V.	INF.
2	0V.	0Ω
3	245V.AC	160Ω
4	0V.	INF.
5	245V.AC	160Ω
6	0V.	INF.
7	6.4V.AC	.1Ω
8	275V.DC	70KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 473-30

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

STEWART-WARNER
MODELS 9005-A, B



STEWART-WARNER
MODELS 9005-A, B

TRADE NAME	Stewart-Warner, Models 9005-A, B.
MANUFACTURER	Stewart-Warner Corp., 1826 Diversey Pkwy. Chicago, Ill.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 1A5GT Power Output.
POWER SUPPLY	1.5 Volt "A" & 90 Volt "B" Batteries in Pack Form
RATING	210 MA @ 1.6 Volts DC & 8.2 MA @ 97 Volts DC
TUNING RANGE—BROADCAST	540-1725KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer at last reference mark at left end of dial. Volume control should be at maximum and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to grid cap of 1A7GT. Low side to chassis.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200MMFD	High side to ext. ant. lead. Low side to chassis.	1500KC	1500KC	"	A5	" " " "
200MMFD	"	1500KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: STEWART-WARNER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1H5GT	1H5GT	5Z	
4	Power Output	1A6GT	1A6GT	6X	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: STEWART-WARNER PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	10	25	502266	TA-10	PRS25-10	BR102A	TC22	M-10-25	Bias Filter
6	.25	200	502262	TC-2	484-.25	DT4P25	TP430	S-4-25	Pwr. Supp. Bypass
7	.002	600	502260	TC-22	684-002	DT6D2	TP405	S-6-002	Output Plate Bypass
8	.5	200	502263	TC-5	484-.5	DT4P5	TP431	S-4-5	Filament Bypass
9	.01	400	502151	TC-11	484-01	DT4S1	TP421	S-4-01	Audio Coupling
10	.01	400	502151	TC-11	484-01	DT4S1	TP421	S-4-01	" "
11	.05	400	502157	TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
12	.05	400	502157	TC-15	484-05	DT4S5	TP426	S-4-05	Conv. Screen Bypass
13	260	500	502271	1FM-325	1468-00025	5W5T25	MC240	M0.5-325	Audio Plate Bypass
14	110	500	502160	1FM-31	1468-0001	5W5T1	MC235	M0.5-31	IF Bypass Vol. Cont.
15	50	500	502159	1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Osc. Grid Capacitor
16	2	500	502411						RF Coupling Cer.
17	50	500	502159	1FM-45	1468-00005	5W5Q5	MC225	M0.5-45	Ant. Pri. Shunt Cer.
18	2	500	502411						Neutralizing Cer.*

*Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STEWART-WAR. PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
19A	500KΩ	1	161325	MK401	D13-133	AM-60-2	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 19A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

RESISTORS

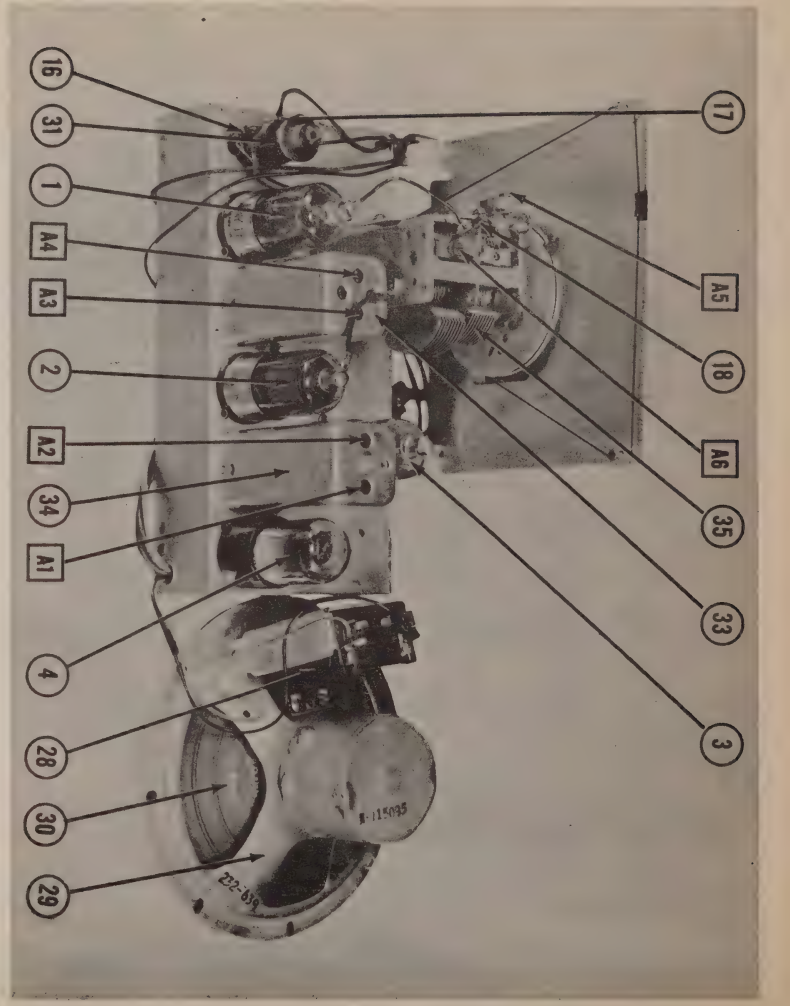
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STEWART-WARNER PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
20	220KΩ	½	502133	BTS-220K	Red-Red-Yl. Oscillator Grid
21	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Converter Screen Dropping †
22	3.3 Meg.	½	502269	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
23	3.3 Meg.	½	502269	BTS-3.3 Meg.	Or.-Or.-Grn. AF Grid
24	680KΩ	½	502267	BTS-680K	Blue-Gray-Yl. AF Plate Load
25	1 Meg.	½	502268	BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
26	560Ω	½	502127	BTS-560	Grn.-Blue-Br. Bias
27	47Ω	½	502264	BW-½-47	Yl.-Vi.-Blk. Bias

†Some models use 15KΩ ½ W Part No. 502266

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: STEWART-WARNER PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	INSTALLATION NOTES
28	11000Ω	3.5Ω	430Ω	.17Ω	119749	A-3823	T22S47	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

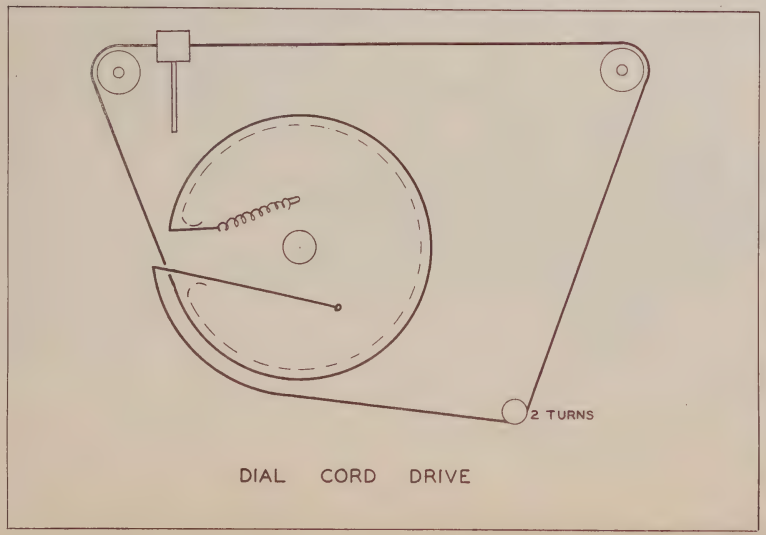
ITEM No.	RATINGS		REPLACEMENT DATA: STEWART-WARNER PART No.	REPLACEMENT DATA: JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-112		
29	PM	3.5Ω	115095	Mod. P6-T		
	CONE DIA.	VC DIA.				
30	6"	½"	119748			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: STEWART-WARNER PART No.	REPLACEMENT DATA: MEISSNER PART No.	INSTALLATION NOTES
31	Ant. Coil	.2Ω	2.3Ω	502277		
32	Osc. Coil	2Ω	4.5Ω	502278		
33	Input IF	39.5Ω	29.5Ω	502279	16-6658	
34	Output IF	30.5Ω	30.5Ω	502280	16-6660	

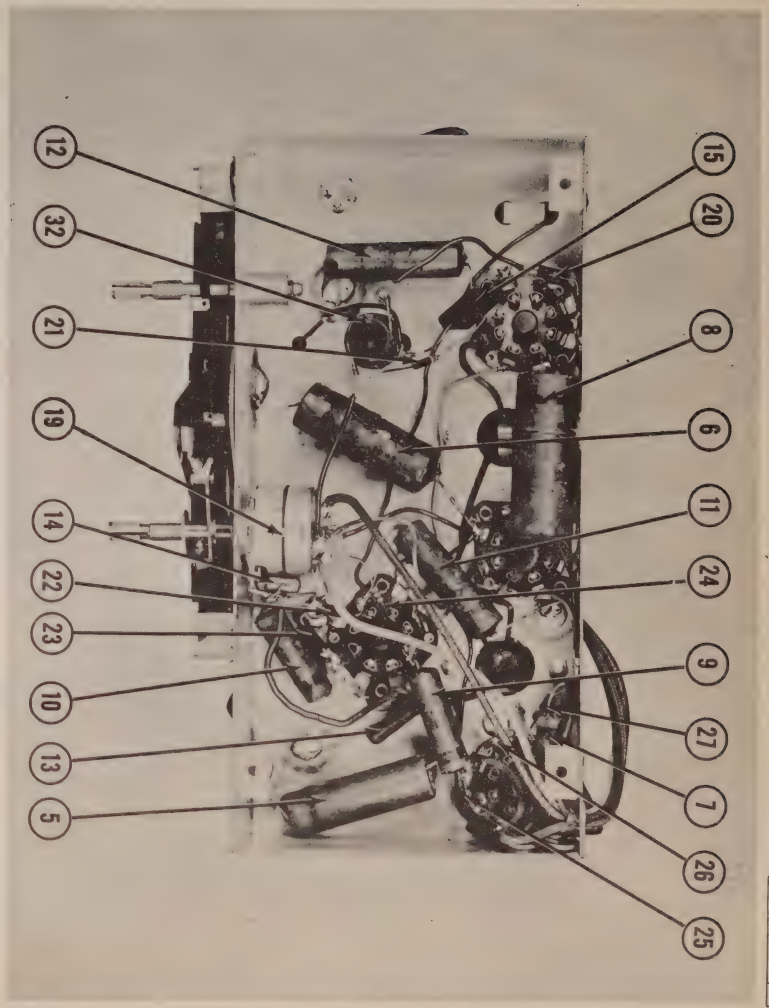
MISCELLANEOUS

ITEM No.	PART NAME	STEWART-WARNER PART No.	NOTES
35	2 Gang Var. Cap	119528	Ant. Trimmer (A6) Included
A5	Trimmer Cap.	119719	Osc. Trimmer
	Dial Scale	502226	
	Pointer	502602	
	Dial Window	502397	Celluloid
	Spring	114968	Dial Cord Tension



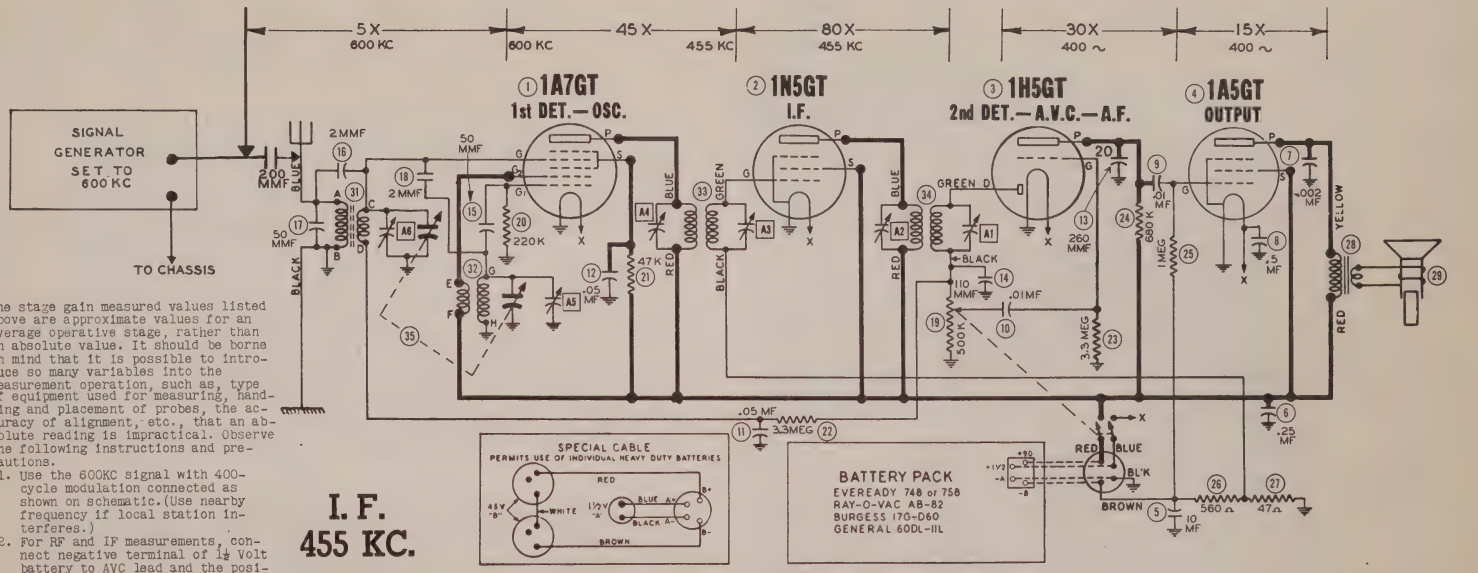
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



STEWART-WARNER
MODELS 9005-A, B

STEWART-WARNER
MODELS 9005-A, B



I. F.
455 KC.

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. Observe the following instructions and precautions.

1. Use the 600KC signal with 400-cycle modulation connected as shown on schematic. (Use nearby frequency if local station interferes.)
2. For RF and IF measurements, connect negative terminal of 1½ Volt battery to AVC lead and the positive terminal to chassis.
3. Be sure radio is carefully tuned to signal generator frequency. (Use weak signal for sharper tuning.)

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0V.	1.5V.DC	90V.DC	50V.DC	0V.	90V.DC	0V.	0V.	-.16V.DC
2	1N5GT	0V.	1.5V.DC	90V.DC	90V.DC	0V.	-.4V.DC	0V.	0V.	-.4V.DC
3	1H5GT	0V.	1.5V.DC	65V.DC	-2V.DC	-2V.DC	0V.	0V.	0V.	0V.
4	1A5GT	0V.	1.5V.DC	85V.DC	90V.DC	-.4V.DC	-.5V.DC	0V.	-.4V.DC	

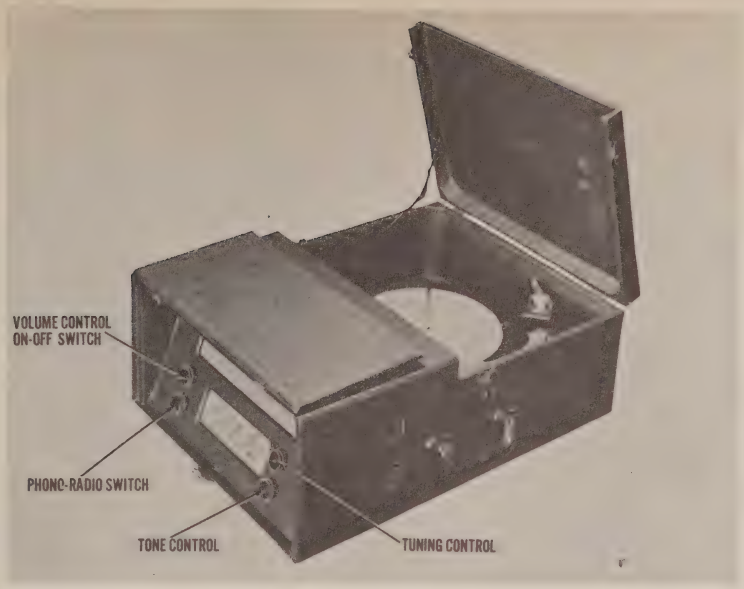
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0Ω	*	INF.	INF.	180KΩ	INF.	0Ω	0Ω	3.6MEG.
2	1N5GT	0Ω	*	INF.	INF.	INF.	40Ω	0Ω	0Ω	66Ω
3	1H5GT	0Ω	*	INF.	350KΩ	350KΩ	3 MEG.	0Ω	3.6MEG.	3 MEG.
4	1A5GT	INF.	*	INF.	INF.	875KΩ	500Ω	0Ω	40Ω	

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

473-31



TELETONE MODEL 134

TRADE NAME	Teletone, Model 134
MANUFACTURER	Teletone Radio Co., 1901 S. Washtenaw Ave., Chicago, Ill.
TYPE SET	AC Operated Automatic Phono-Radio Combination Superheterodyne - Self Contained Loop Antenna
TUBES (EIGHT)	Types, 6SA7 Converter, 6SK7 IF Amp., 6SQ7 Det.-AVC., 6SJ7 Audio Amp., 6SJ7 Phase Inverter, (2) 6K6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	530-1700KC RATING .370 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer to last reference mark on low frequency end of dial. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to stator of rear section of variable. Low side to chassis.	455KC	Variable fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
200 MMFD	High side to ext ant. lead. Low side to chassis.	1500KC	1500KC	"	A5	" " " "
200 MMFD	"	"	Tune for maximum output.	"	A6	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove the four push-on type control knobs.
2. Remove three machine screws and washers holding chassis to cabinet.
3. Remove six wood screws and washers holding changer to cabinet. Tilt changer to back side.
4. Remove two wood screws and washers holding back chassis panel board.
5. Remove changer from cabinet and tilt on end next to cabinet.
6. Disconnect phono-motor plug.
7. Disconnect phono-pickup plug from end of chassis.
8. Remove the chassis from the cabinet.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TELETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter		6SA7	8R	
2	IF Amp.		6SK7	6N	
3	Det.-AVC		6SQ7	8Q	
4	Audio Amp.		6SJ7	8N	
5	Phase Inverter		6SJ7	8N	
6	Power Output		6K6GT	7S	
7	Power Output		6K6GT	7S	
8	Rectifier		6X5GT	8S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TELETONE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	15	300		EL-215†	AF444J†	BRD2235	FP380†	DY-3x15-450†	Filter - Brown
B	15	300							" - Yellow
C	15	300				BR2035			" - Red
10	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Line Bypass
11	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	" "
12	.1	200		TC-1	484-.1	DT4P1	TP428	S-4-1	Tone Compensation
13	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	Audio Coupling
14	.02	400		TC-12	484-02	DT4S2	TP423	S-4-02	" "
15	.1	200		TC-1	484-.1	DT4P1	TP428	S-4-1	Audio Screen Bypass
16	.1	200		TC-1	484-.1	DT4P1	TP428	S-4-1	Ph. Inv. Screen Bypass
17	.002	600		TC-22	684-002	DT6D2	TP405	S-6-002	Audio Coupling
18	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	Screen Bypass
19	.05	400		TC-15	484-05	DT4S5	TP426	S-4-05	AVC Filter
20	150	500		1FM-315	1468-00015	5W5T15	MC237	MO.5-315	IF Bypass Vol. Cont.
21	150	500		1FM-315	1468-00015	5W5T15	MC237	MO.5-315	IF Bypass Diode

†Use mounting clip.

CONTROLS

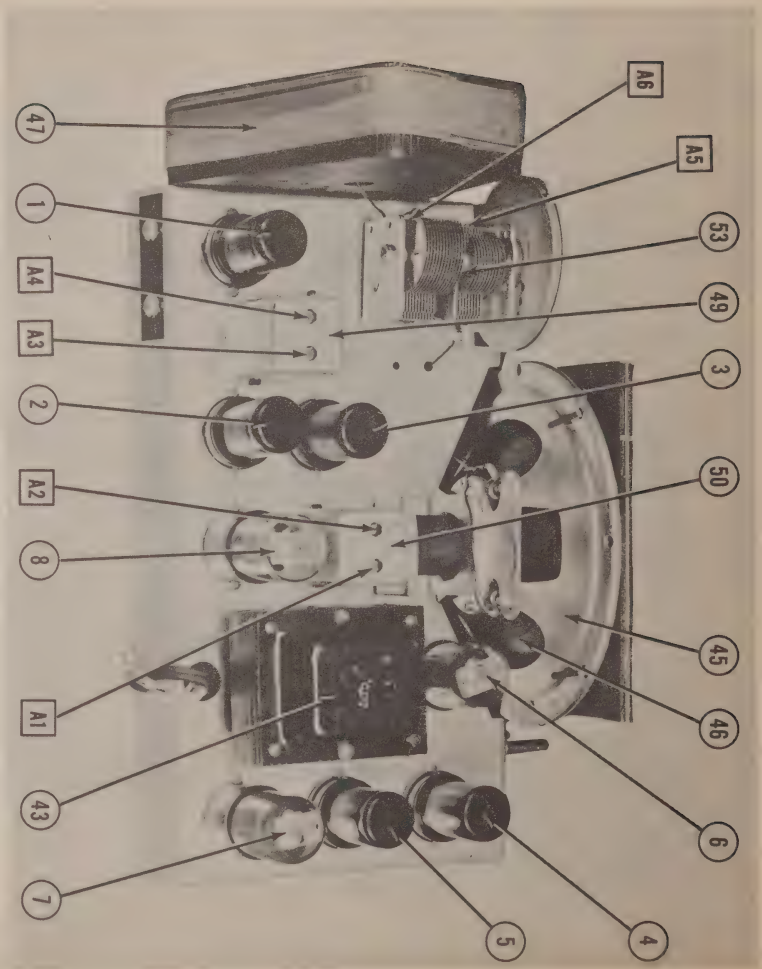
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
22A	500KΩ	1	A-VC-1	MR48#	D13-133#	M-50-Z#	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 22A per instructions.
C	Switch		" "	M26	41	SW-A	" " " "
23A	20KΩ	1	C-VC-1	MR28	D16-119		Tone Control
B	Shaft		Not Req.	Not Req.	A		Attach to 23A per instructions.

#Install a 47KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft side, terminals down.)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELETONE PART No.	IRC PART No.	IDENTIFICATION CODES
24	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
25	10KΩ	2		BT-2-10K	Br.-Blk.-Or. Voltage Dropping
26	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
27	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
28	100Ω	½		BW-½-100	Br.-Blk.-Br. AF Cathode
29	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn. AF Screen Dropping
30	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
31	100KΩ	½		BTS-100K	Br.-Blk.-Yl. Phase Inverter Grid
32	1000Ω	½		BTS-1000	Br.-Blk.-Red Phase Inverter Cathode
33	1.5 Meg.	½		BTS-1.5 Meg.	Br.-Grn.-Grn. Phase Inverter Screen Dropping
34	220KΩ	1-½		BTS-220K	Red-Red-Yl. Phase Inverter Plate Load
35	330KΩ	1-½		BTS-330K	Or.-Or.-Yl. Output Grid
36	330KΩ	1-½		BTS-330K	Or.-Or.-Yl. Output Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TELETONE PART No.	IRC PART No.	
37	390Ω	1		BTA-390	Or.-White-Br. Output Cathode
38	2200Ω	2		BT-2-2200	Red-Red-Red Filter
39	390Ω	2		BW-2-390	Or.-White-Br. Filter
40	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Phono Shunt
41	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Series Phono
42	2200Ω	½		BTS-2200	Red-Red-Red Feedback

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	TELETONE PART No.	STANCOR PART No.	THORDARSON PART No.	
43	117V AC @ .37A	480V CT @ .048A	6.7V AC @ 3.1A		C-TR2		T-4R01	

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TELETONE PART No.	STANCOR PART No.	THORDAR'N PART No.		
	PRI.	SEC.	PRI.	SEC.					
44	16000Ω CT	3.4Ω	500Ω CT	.4Ω	C-TR1	A-3642*	T-2849*		*Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	VC IMP.	TELETONE PART No.	JENSEN PART No.		
45	FM	3.4Ω	C-SP1	ST-10* Mod. P6-X		*Drill new mounting holes.
	CONE DIA.	VC DIA.				
46	6-1/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	TELETONE PART No.	MEISSNER PART No.	
47	Loop Ant.	.2Ω	1.5Ω			
48	Osc. Coil	1Ω	6.5Ω	ALC1	14-1040	Add 50 MMF from osc. grid to high side tuning cap.
49	Input IF	20Ω	19Ω	C-LF-1	16-6658	
50	Output IF	18Ω	18Ω	C-LF-2	16-6660	

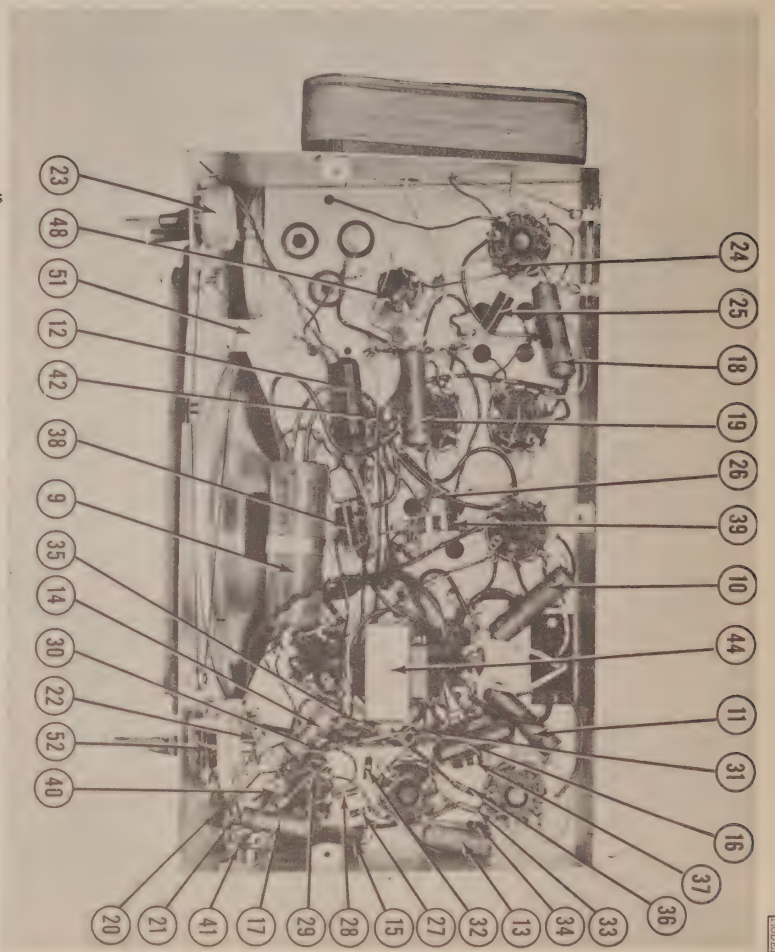
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TELETONE PART No.		
51	Bayonet	6-8	0.15	Brown			Type 47

MISCELLANEOUS

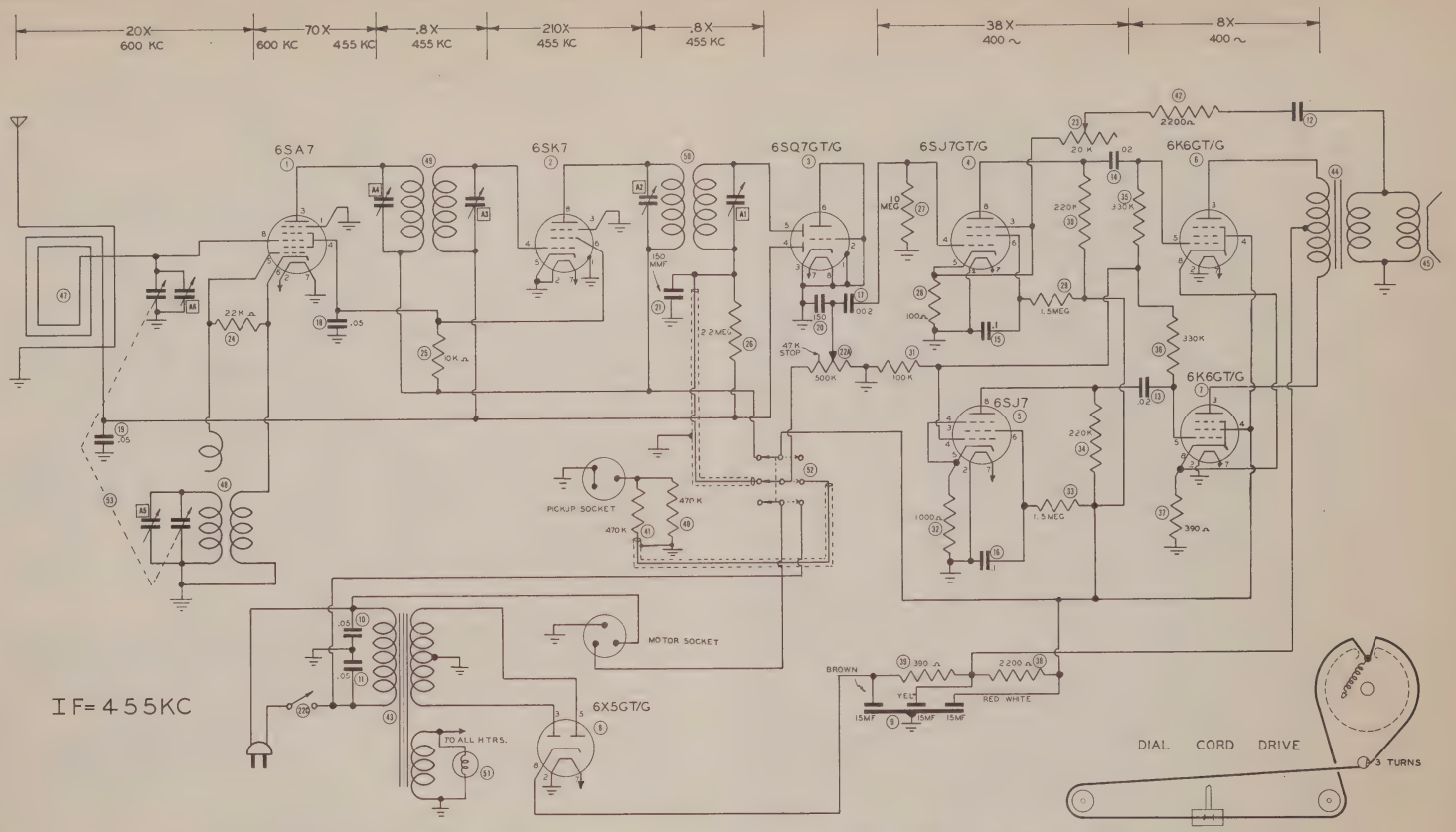
ITEM No.	PART NAME	TELETONE PART No.	NOTES
52	Radio-Phono Sw.		
53	2-Gang Var. Cap		(26-497 MMF, 25-188 MMF) Trimmers Included

CHASSIS—BOTTOM VIEW



TELETONE MODEL 124

TELETONE MODEL 124



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0V.	0V.	187 V.DC	90 V.DC	6 V.DC	0V.	6.7 V.AC	235 V.DC
2	6SK7	0V.	0V.	0V.	235 V.DC	0V.	90 V.DC	6.7 V.AC	187 V.DC
3	6SQ7	0V.	0V.	0V.	235 V.DC	24 V.DC	0V.	6.7 V.AC	0V.
4	6SJ7	0V.	0V.	.05 V.DC	55 V.DC	.05 V.DC	20 V.DC	6.7 V.AC	90 V.DC
5	6SJ7	0V.	0V.	.65 V.DC	0V.	.65 V.DC	19 V.DC	6.7 V.AC	50 V.DC
6	6K6GT	0V.	0V.	245 V.DC	187 V.DC	0V.	0V.	6.7 V.AC	15 V.DC
7	6K6GT	0V.	0V.	245 V.DC	187 V.DC	0V.	0V.	6.7 V.AC	15 V.DC
8	6X5GT	0V.	0V.	240 V.AC	0V.	240 V.AC	0V.	6.7 V.AC	275 V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SA7	0 Ω	0 Ω	45 KΩ	55 KΩ	20 KΩ	.5 Ω	.2 Ω	2.5 MEGΩ
2	6SK7	0 Ω	0 Ω	0 Ω	2.5 MEGΩ	0 Ω	55 KΩ	.2 Ω	45 KΩ
3	6SQ7	0 Ω	0 Ω	0 Ω	2.5 MEGΩ	410 KΩ	0 Ω	.2 Ω	0 Ω
4	6SJ7	0 Ω	0 Ω	87 Ω	10 MEGΩ	87 Ω	1.5 MEGΩ	.2 Ω	285 KΩ
5	6SJ7	0 Ω	0 Ω	1000 Ω	95 KΩ	1000 Ω	1.5 MEGΩ	.2 Ω	285 KΩ
6	6K6GT	0 Ω	0 Ω	45 KΩ	45 KΩ	400 KΩ	INF.	.2 Ω	375 Ω
7	6K6GT	0 Ω	0 Ω	45 KΩ	45 KΩ	380 KΩ	INF.	.2 Ω	375 Ω
8	6X5GT	0 Ω	0 Ω	132 Ω	INF.	142 Ω	INF.	.2 Ω	45 KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-32

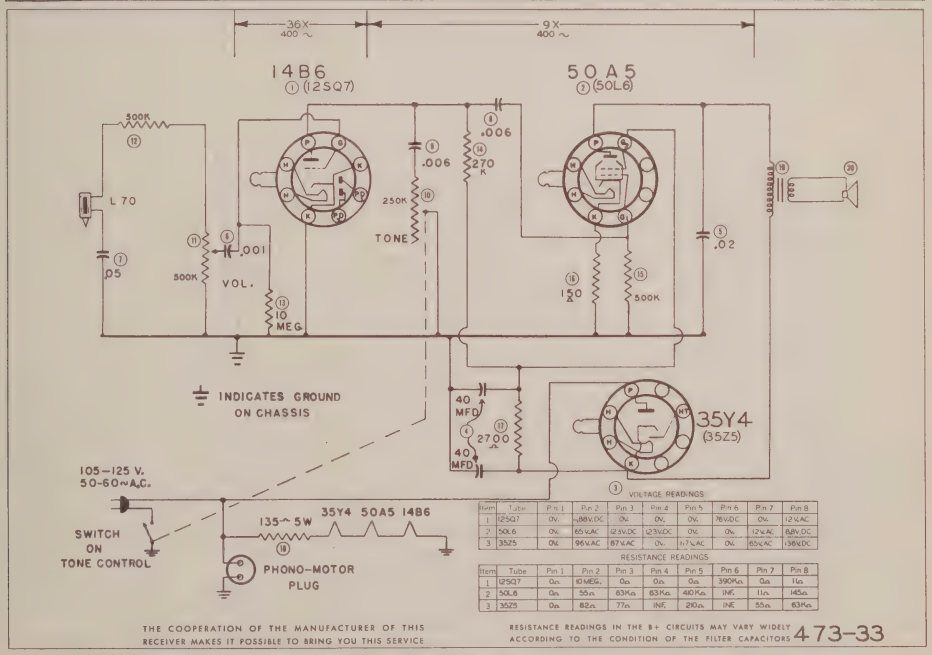
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**

TRUETONE
MODEL D2603

TRUETONE MODEL D2603

TRADE NAME	Truetone Model D2603 (Factory No. 461)
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC Operated 3 Tube Amplifier with Speaker
TUBES (THREE)	Types, 14B6 Audio Amp., 50A5 Power Output, 35Y4 Rectifier or 12SQ7GT, 50L6GT, 35Z5GT Respectively
POWER SUPPLY	105-125 Volts AC RATING .252 Amps. @ 117V AC



Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SQ7	0V.	86V.DC	0V.	0V.	0V.	76V.DC	0V.	12V.AC
2	50L6	0V.	65V.AC	123V.DC	123V.DC	0V.	0V.	12V.AC	88V.DC
3	35Z5	0V.	96V.AC	87V.AC	0V.	117V.AC	0V.	65V.AC	136V.DC

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SQ7	0Ω	10MEG.	0Ω	0Ω	0Ω	390KΩ	0Ω	1Ω
2	50L6	0Ω	50Ω	83KΩ	83KΩ	460KΩ	INF.	1Ω	145Ω
3	35Z5	0Ω	82Ω	77Ω	INF.	210Ω	INF.	55Ω	63KΩ

1. DC voltage measurements are at 20,000 ohms per volt. AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1A	Audio Amp.	14S6	14S6	8W	
B	Audio Amp.	12SQ7GT	12SQ7GT	8Q	
2A	Power Output	50A5	50A5	6AA	
B	Power Output	50L6GT	50L6GT	7AC	
3A	Rectifier	35Y4	35Y4	5AL	
B	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	40	150	2065	TA-440	PRSA150-40-40	BRD4415	2N511	M-2x40-150	Filter - Red
B	40	150							" - Green
5	.02	400	1963	TC-12	484-02	DT4S2	TP423	S-4-02	Output Plate Bypass
6	.001	600	1956	TC-21	684-001	DT6D1	TP404	S-6-001	Audio Coupling
7	.05	200	1967	TC-15	484-05	DT4S2	TP426	S-4-05	Pickup Isolation
8	6000	600	1971	1FM-26	1467-006	1D5D6	MC467	MW.5-26	Audio Coupling
9	6000	600	1971	1FM-26	1467-006	1D5D6	MC467	MW.5-26	Tone Compensation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
10A	250KΩ	1	2473	UM149	D11-130	M-55-S	Tone Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 10A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "
11A	500KΩ	1	2472	MR48	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	A	Not Req.	Attach to 11A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
12	500KΩ	½	2353	BTS-470K	Grn.-Blk.-Yl. Series Phono.
13	10 Meg.	½	2335	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
14	270KΩ	½	2361	BTS-270K	Red-Vi.-Yl. AF Plate Load
15	500KΩ	½	2353	BTS-470K	Grn.-Blk.-Yl. Output Grid
16	150Ω	½	2372	BW-½-150	Br.-Grn.-Br. Output Cathode
17	2700Ω	1	2378	BTA-2700	Red-Vi.-Red Filter
18	135Ω	5	2238	ABA-150	Line Dropping-See Note 1

Note 1 - Set slider at 130Ω from one end.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
19	1800Ω	2.9Ω	190Ω	.6Ω	Part of 5855	A-3876*	T22S45*		*Bend mounting tabs down, file out slots and mount on original bracket.

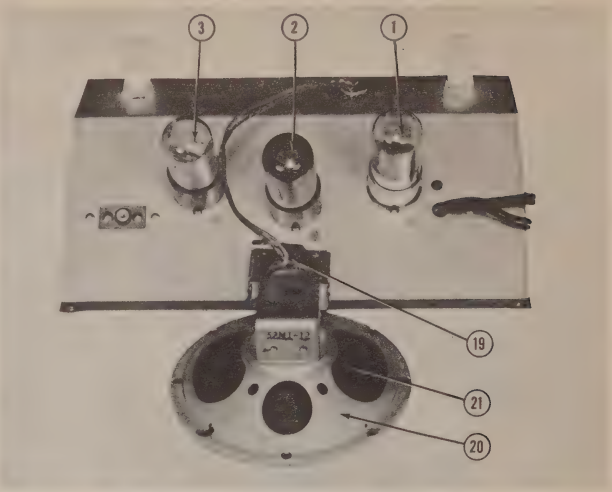
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: TRUETONE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-106		
20	PM	2.9Ω	5855	Mod. P5-W		
	CONE DIA.	VC DIA.				
21	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

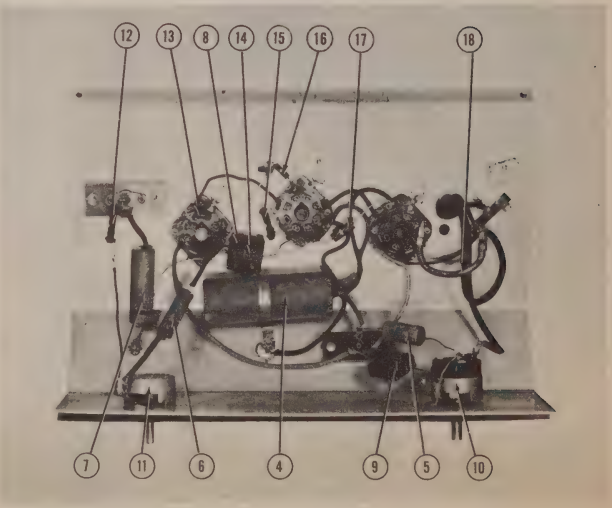
MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
	Phono. Motor	6414	
	Pick-up Assby.	6343	Arm with Cartridge L70
	Turntable	6417	9"

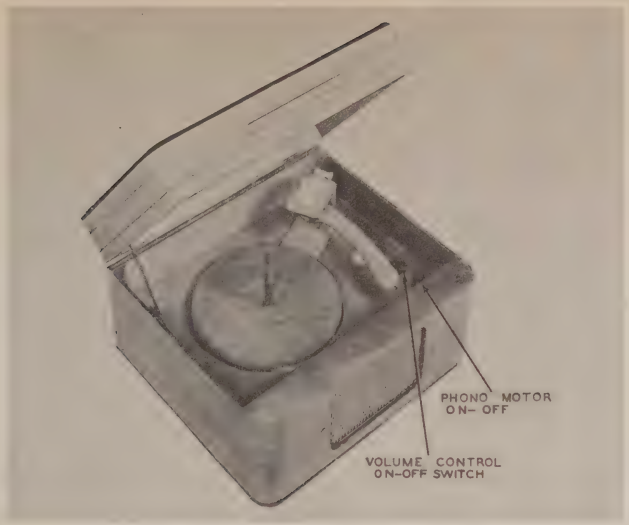
CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW

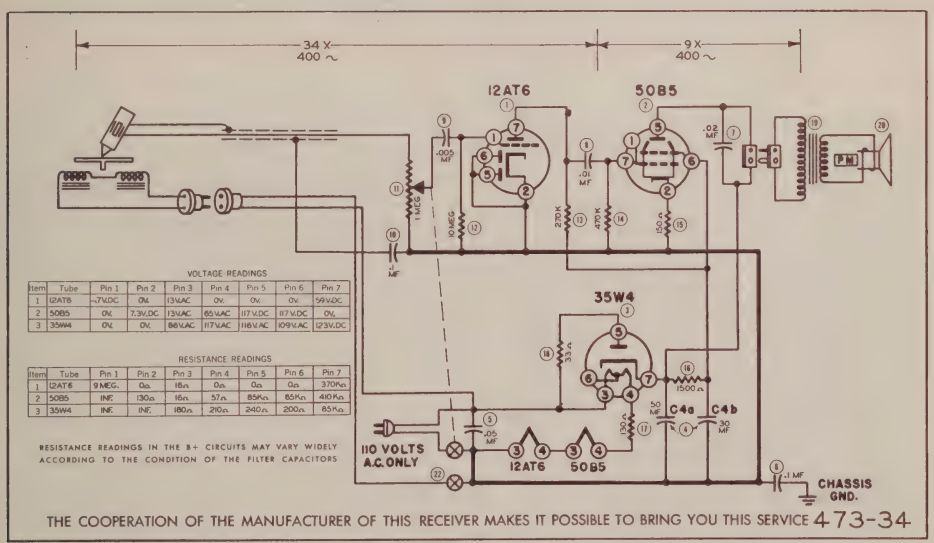


TRUETONE
MODEL D 2604



TRUETONE MODEL D2604

TRADE NAME	Truetone, Model D2604
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC Operated Automatic Record Changer with 3 Tube Amp., and Speaker
TUBES (THREE)	Types, 12AT6 Audio Amp., 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	105-125 Volts AC RATING .240 Amp. @ 117 Volts AC



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12AT6	-7V.DC	0V.	13V.AC	0V.	0V.	0V.	59V.DC.
2	50B5	0V.	7.3V.DC	13V.AC	65V.AC	117 V.DC	117 V.DC	0V.
3	35W4	0V.	0V.	86V.AC	117V.AC	116V.AC	109V.AC	123V.DC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12AT6	9 MEG.	0Ω	16Ω	0Ω	0Ω	0Ω	370KΩ
2	50B5	INF.	130Ω	16Ω	57Ω	85KΩ	85KΩ	410KΩ
3	35W4	INF.	INF.	180Ω	210Ω	240Ω	200Ω	65KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 473-34

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Audio Amp.	12AT6	12AT6	7BT	
2	Power Output	50B5	50B5	7BZ	
3	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SOLAR PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
4A	50	150	67A10	TA-530	PRS150-40-40	BRD3515	2N521	DSB-5030-150	Filter - Red
B	30	150							" - Yellow
5	.05	400	64B1-22	TC-15	484-.05	DT4S5	TP426	S-4-05	Line Filter
6	.1	400	64B1-20	TC-1	484-.1	DT4P1	TP428	S-4-1	Line Isolating
7	.02	400	64B1-24	TC-12	484-.02	DT4S2	TP423	S-4-02	50A5 Plate Bypass
8	.01	400	64B1-25	TC-11	484-.01	DT4S1	TP421	S-4-01	Audio Coupling
9	.005	600	64B1-12	TC-25	684-.005	DT6D5	TP408	S-6-005	" "
10	.1	400	64B1-20	TC-1	484-.1	DT4P1	TP428	S-4-1	Phono Coupling ‡

‡Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
11A	1 Meg.	1	75B1-9	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 11A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
12	10 Meg.	½	60B8-106	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
13	270KΩ	½	60B8-274	BTS-270K	Red-Vi.-Yl. 1st AF Plate Load
14	470KΩ	½	60B8-474	BTS-470K	Yl.-Vi.-Yl. Output Grid
15	150Ω	1	60B14-151	BW-½-150	Br.-Grn.-Br. Output Cathode
16	1500Ω	1	60B14-152	BTA-1500	Br.-Grn.-Red Filter
17	130Ω	5	61A3-4		Line Dropping
18	33Ω	1	60B14-330	BW-1-33	Or.-Or.-Blk. Rectifier Ballast

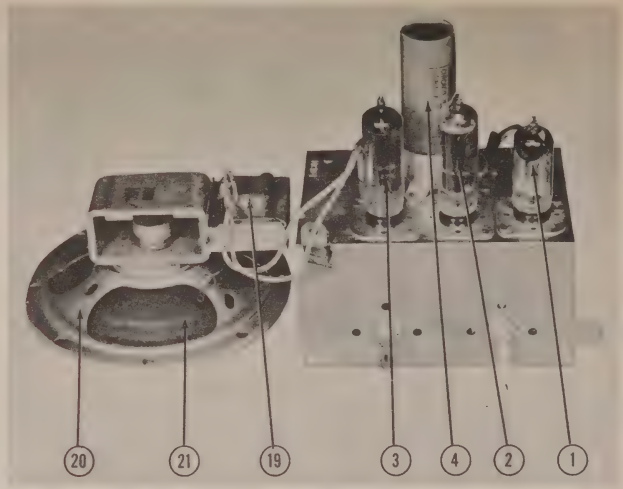
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.		INSTALLATION NOTES
19	3400Ω	2.9Ω	265Ω	1Ω	96A4	A-3856*	T22S46*		*Bend mounting tabs down.

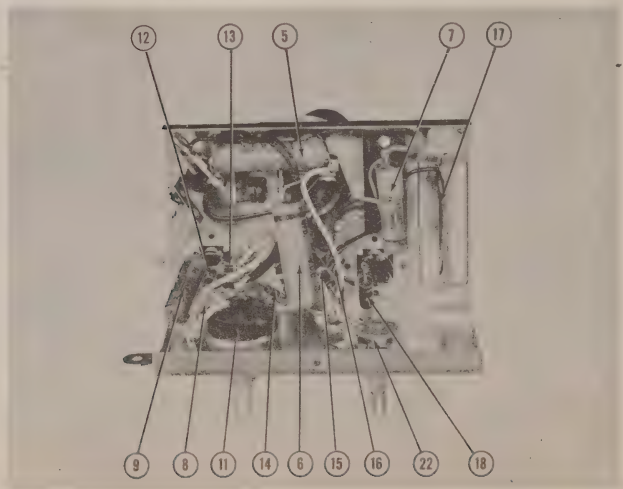
SPEAKER

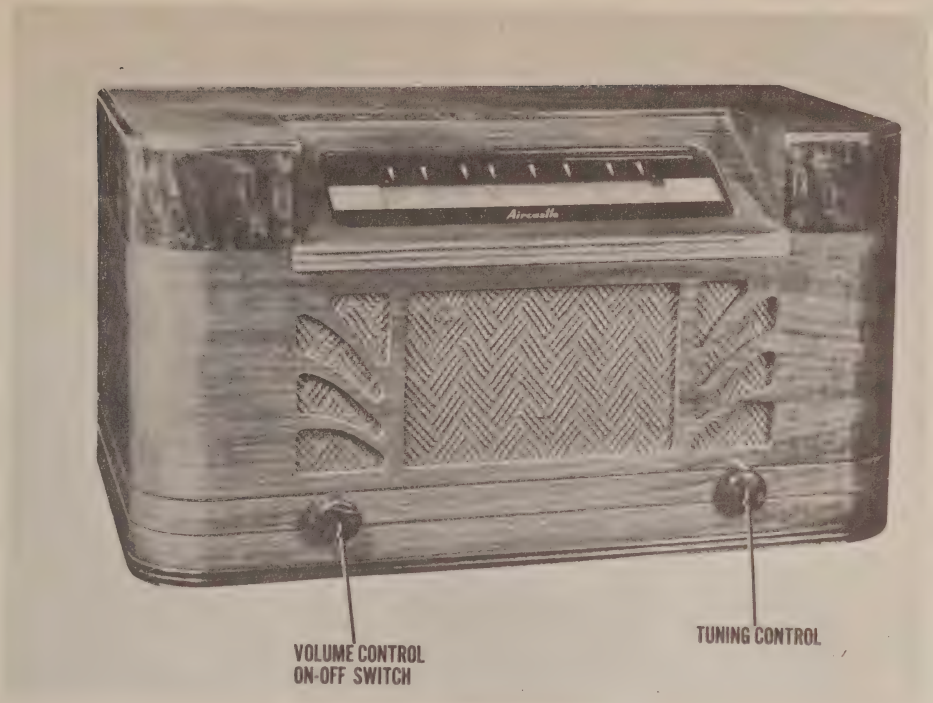
ITEM No.	RATINGS		REPLACEMENT DATA: TRUETONE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-107		
20	PM	2.9Ω	78B9-2	P8-V		
	CONE DIA.	VC DIA.				
21	4-13/16"	5/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





AIRCASTLE MODEL PX

TRADE NAME	Aircastle, Model PX
SUPPLIER	Spiegel Inc., 1061 W. 35th St., Chicago, Ill.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 1A7GT Converter, 1N5GT IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output.
POWER SUPPLY	90 Volt "B" Battery & 1½ Volt "A" Battery - Burgess Type 17G-D60 or equiv.
RATING	14MA @ 90V DC & 245MA @ 1.5V DC
TUNING RANGE—BROADCAST	535-1725KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control at maximum volume position and output from signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
.1 MFD.	High side to grid cap of 1A7. Low side to chassis.	455KC	High freq.end of dial.(Variable fully open).	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
250 MMF	High side to ant. lead. Low side to chassis.	1725KC	"	"	A5	" " " "
"	"	1500KC	Tune for maximum output.	"	A6	" " " "

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1A7GT	1A7GT	7Z	
2	IF Amp.	1N5GT	1N5GT	5Y	
3	Det.-AVC-AF	1H5GT	1H5GT	8Z	
4	Power Output	3Q5GT	3Q5GT	7AP	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	MALLORY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	4	150	A18-273	TC40	M-4-150	UT-41	PRS150-4	BR415	Pwr. Supp. Bypass
6	.002	600		TP405	S-6-002	TC-22	684-002	DT6D2	3Q5 Plate Bypass
7	.01	400		TP426	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
8	.01	400		TP426	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
9	.02	400		TP423	S-4-02	TC-12	484-02	DT4S2	IF Grid Capacitor
10	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	Conv. Screen Bypass
11	.1	200		TP428	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supp.
12	.05	200		TP426	S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	250	500		MC240	M0.5-325	1FM-325	1468-00025	5W5T25	Audio Plate Bypass
14	50	500		MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Capacitor
15	50	500		MC225	M0.5-45	1FM-45	1468-00005	5W5Q5	Pri. Ant. Shunt

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16A	1 Meg.	1	A24-165	MK402	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 16A per instructions
C	Switch		" "	M27	42	SW-A2	" " " " "

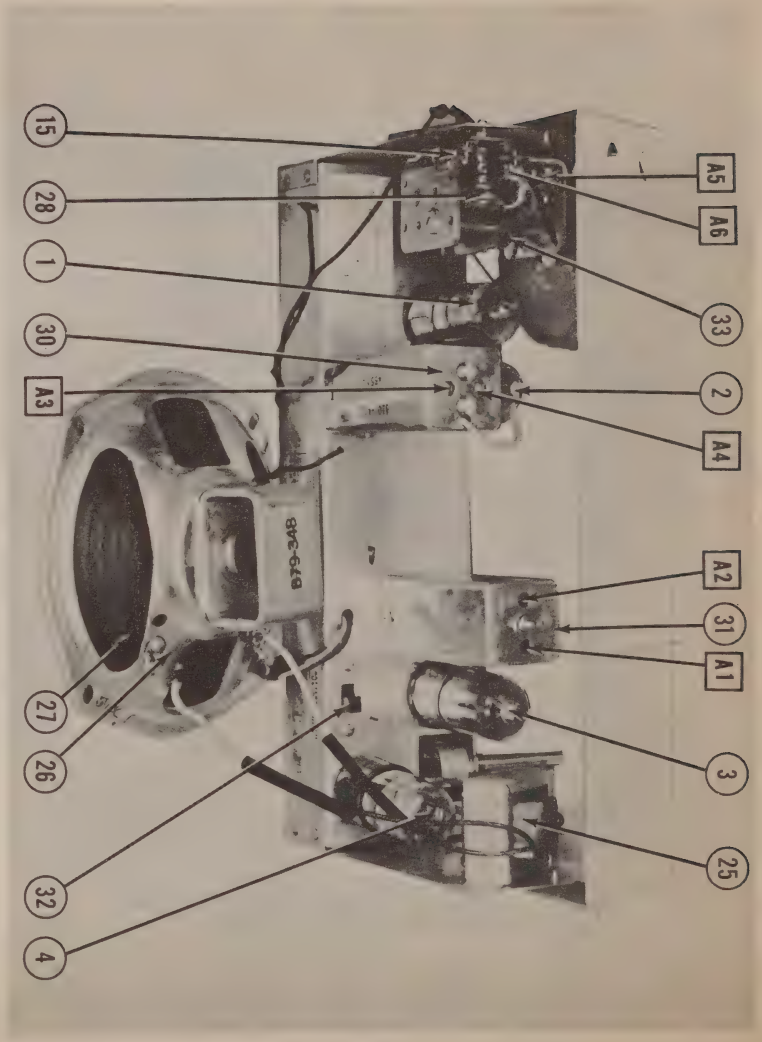
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	IDENTIFICATION CODES
17	220KΩ	½		BTS-220K	Red-Red-Yl. Osc. Grid
18	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Screen Dropping
19	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. IF Grid
20	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. 1st AF Grid
21	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. 1st AF Plate Load
22	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Output Grid
23	390Ω	½		BW-½-390	Or.-White-Br. Bias
24	.75Ω	1		BW-1-.68	Series Filament

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.		INSTALLATION NOTES
25A	10000Ω	3.2Ω	325Ω	.7Ω	A80-228	A-3831	T14S85		*Output Transformer for alternate speaker.
B					B78-238*				

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA AIRCASTLE PART No.	JENSEN PART No.		INSTALLATION NOTES
	FIELD	VC IMP.		ST-111		
26A	PM	3.2Ω	B79-745	Mod. P6-U		
B			B79-335			Alternate speaker.
	CONE DIA.	VC DIA.				
27	6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

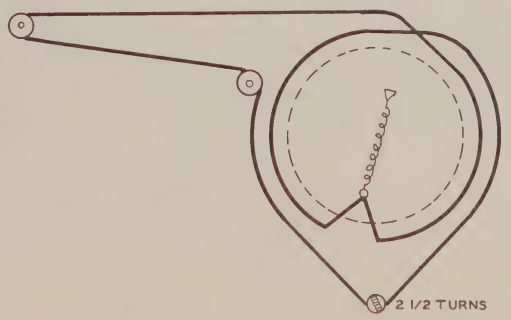
R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIRCASTLE PART No.	REPLACEMENT DATA MEISSNER PART No.	INSTALLATION NOTES
28	Ant. Coil	58Ω	3Ω	A10-414	14-1026	
29	Osc. Coil	2Ω	6Ω	A10-415	14-1040	
30	Input IF	4.5Ω	4.3Ω	B10-416	16-5740	
31	Output IF	6.5Ω		B10-417	16-5742*	

*Add from low end secondary, 250 MMFD cap. to ground, 47KΩ resistor to high end vol. control, 1 Meg. resistor to low end ant. coil secondary.

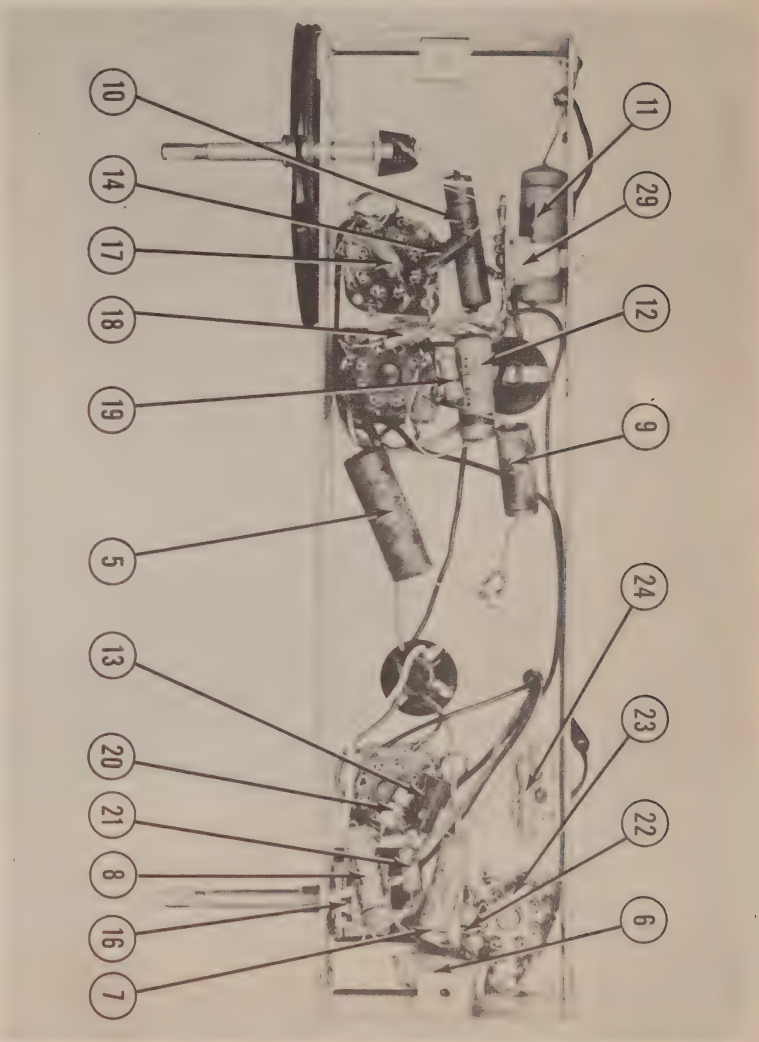
MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
32	Battery Switch	A69-164	
33	2 Gang Var.Cap.	B19-185	(22-418 MMF, 33-200 MMF)



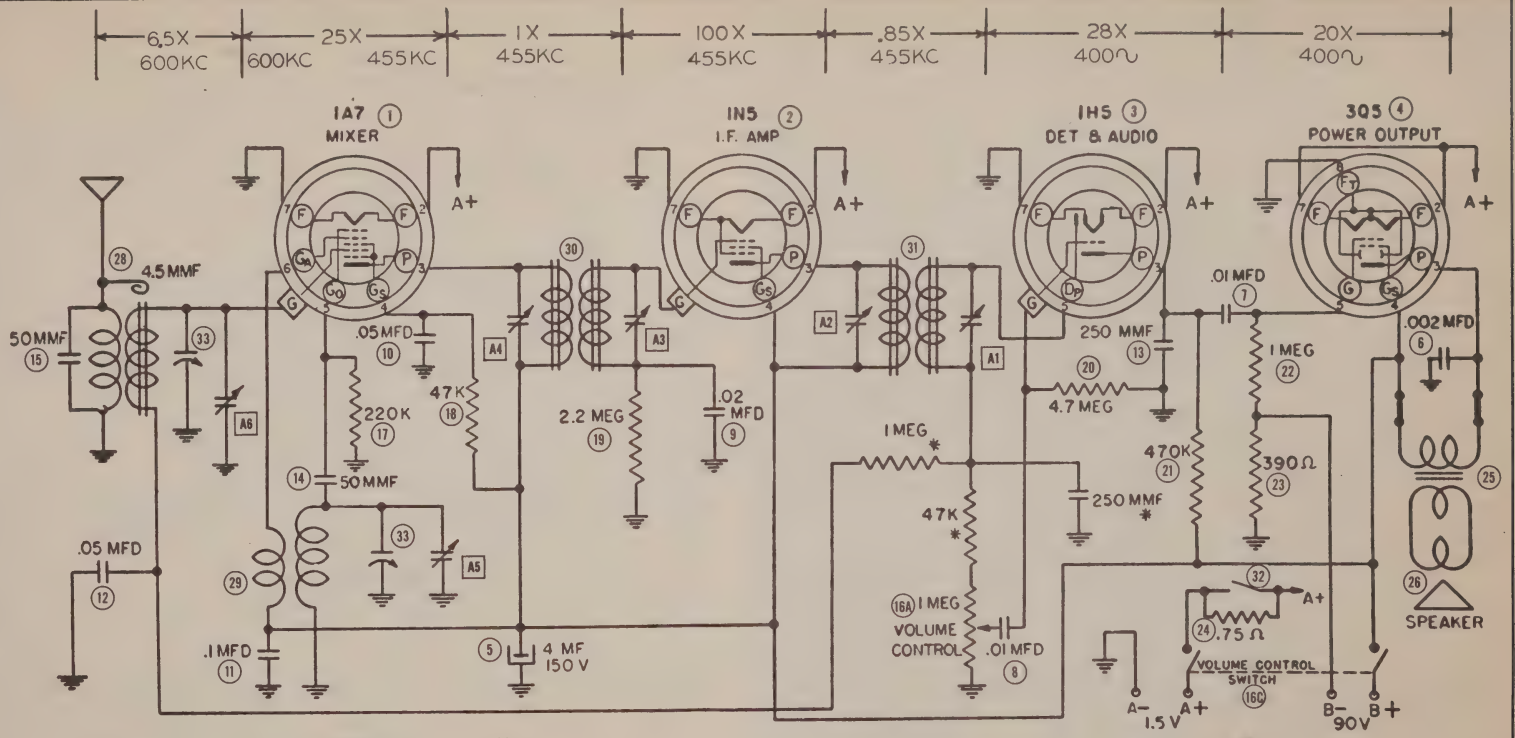
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



AIRCASTLE MODEL PX

AIRCASTLE MODEL PX



*THESE PARTS LOCATED INSIDE 2ND IF CAN.

IF=455KC

NOTE: VOLT. & RES. READING TAKEN WITH BATTERY SWITCH IN "NEW" POSITION.

✳ NOTE: DO NOT USE OHMMETER TO CHECK FILAMENTS

473-35

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0V.	1.4V.DC	89V.DC	40V.DC	0V.	89V.DC	0V.	0V.	0V.
2	1N5GT	0V.	1.4V.DC	89V.DC	89V.DC	0V.	0V.	0V.	0V.	0V.
3	1H5GT	0V.	1.4V.DC	69V.DC	0V.	0V.	0V.	0V.	0V.	0V.
4	3Q5GT	0V.	1.4V.DC	87V.DC	89V.DC	-.45VDC	-5.4V.DC	1.4V.DC	0V.	

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0 Ω	✳	62KΩ	109KΩ	185KΩ	62KΩ	0Ω	1 N F	1.9MEG
2	1N5GT	0 Ω	✳	62KΩ	62KΩ	1 N F	2 MEG	0Ω	2.8MEG	2.5MEG
3	1H5GT	0 Ω	✳	530KΩ	4.5MEG	1 MEG	1 N F	0Ω	0Ω	4.5MEG
4	3Q5GT	0 Ω	✳	62KΩ	62KΩ	1 MEG	360Ω	✳	0Ω	

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is shorted to ground.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

TOP VIEW

FARNSWORTH P-51

Manufactured by Farnsworth Television and Radio Corporation, Marion, Indiana

GENERAL INFORMATION

This changer is designed to play twelve 10-inch or ten 12-inch records not intermixed. The changer will be turned off automatically at the end of the last record. The record support shelf should not be turned until the changer has stopped automatically at the completion of the last record.

This changer, with different tone arms, has been used in some Firestone and Bendix models.

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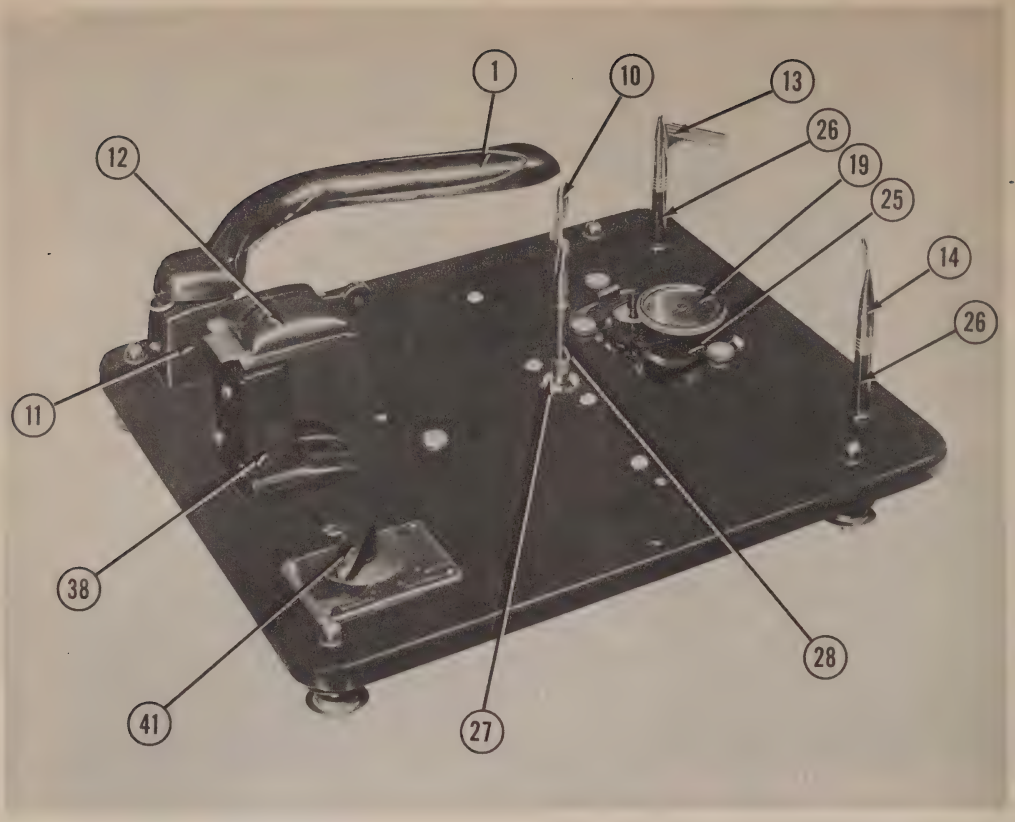
FARNSWORTH
P-51

FARNSWORTH
P-51



TOP VIEW LESS TURNTABLE

THE CHANGE CYCLE

I. The change cycle starts when the friction trip finger (57) moves the starting lever (82) so that it will be engaged by the dog on the moving spindle gear (71). This may be caused by moving the control knob to "reject," in which case reject rod (56) pulls against the wire spring on the trip finger, or it may be caused by the pickup moving into the fast leadout at the end of a record.

During the playing of a record, while the pickup is moving slowly toward the spindle, the starting lever is pushed back with each revolution of the spindle gear. However, when the needle moves in faster, at the end of the record, the starting lever moves far enough to engage the dog on the spindle gear.

II. The spindle gear meshes with the main cam (89), causing the cam to rotate.

III. The automatic stop pawl (89A) is moved in by the record lift lever (116) if there are records on the support post, or out if no records remain on the post. At the same time the tone arm lift lever (part of 102) raises the tone arm off the record.

IV. Next, the roller on the record lift lever rides down an incline on the cam, moving the stack of unplayed records up.

V. As the main cam moves farther, the tone arm return lever (100) is moved outward, moving the tone arm clear of the record stack.

VI. The shelf lever (94) then moves in, moving the record supports (13 and 14) under the record stack.

VII. The record lift lever (116), now moves back up on the cam, allowing the record stack to come down on the support shelves.

VIII. A stud (89B) on the main cam pushes the record ejector lever (67), which acts through the record plunger rocker arm (37) to push the bottom record out over the spindle (10). The record now rests on the record plunger (16), and on the two supports (13 and 14).

IX. If the automatic stop pawl (89A) was moved in by the record lift lever it will move the tone arm stop lever (part of 102) so the arm may move in to the set-down point. If no records were on the support post, so the automatic stop pawl was moved out, it will miss the tone arm stop lever and the arm will be stopped in rest position.

X. The support shelves (13 and 14), and the record plunger (16) are moved out simultaneously, dropping the record on to the turntable.

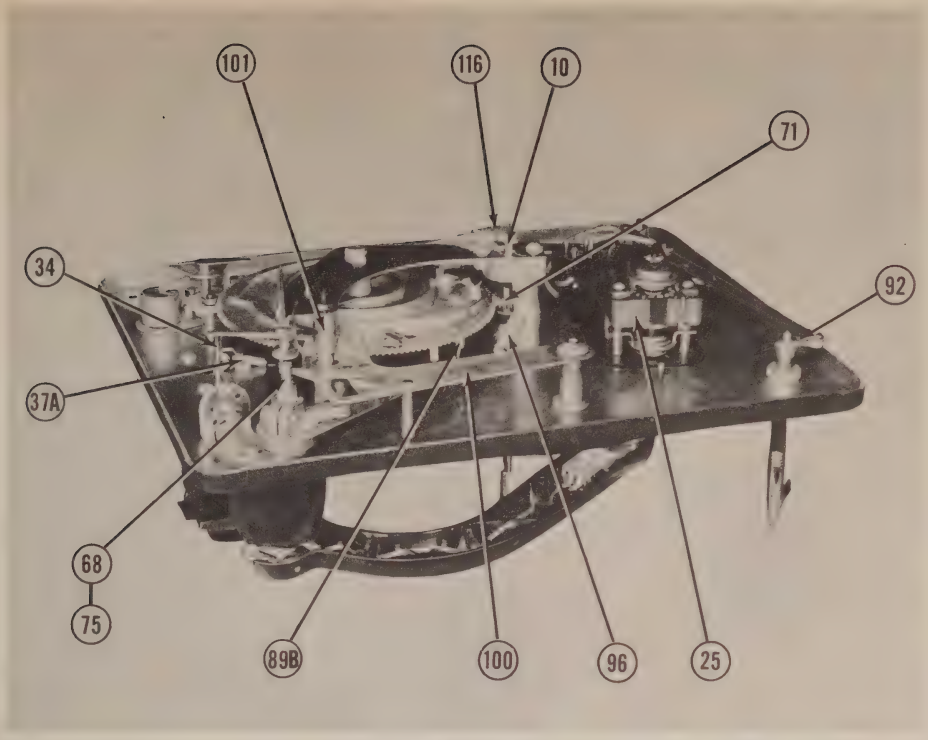
XI. As the starting lever (82) passes the washer (77) on the record ejector lever mounting bolt, this washer moves the starting lever back into play position.

XII. The tone arm return lever (100) continues to move in, bringing the tone arm to the set-down position. If the record support shelf is in 12-inch position the tone arm return lever will be stopped by the interceptor shaft (34). If the shelf is in 10-inch position, this interceptor shaft will be retracted and the tone arm return lever will be permitted to move on in to the 10-inch set-down point.

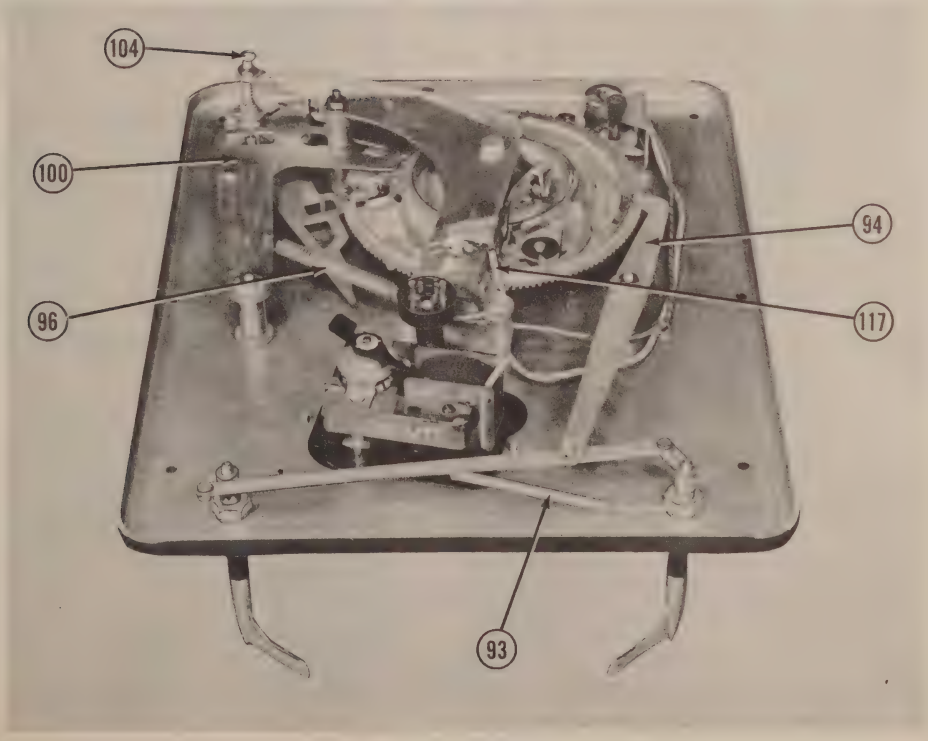
XIII. If the automatic stop pawl (89A) was moved out, due to no records on the support shelf, it will strike the automatic stop lever (99), moving it to "off" position. If the stop pawl was moved in it will miss the stop lever and the cycle will continue.

XIV. The tone arm lift lever now rides back up the inclined surface of the cam, allowing the needle to come down on to the record.

XV. As the spindle gear reaches the cut out section of the main cam, the tone arm lift lever falls into the detent notch, stopping the cam in play position.



REAR VIEW

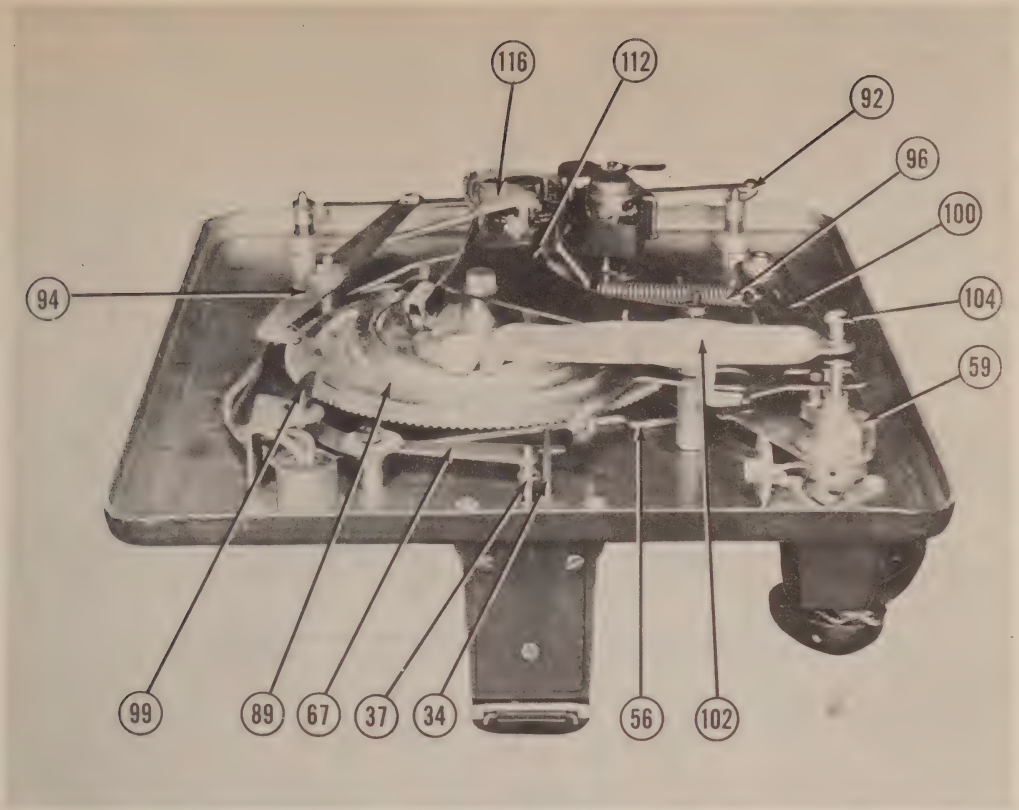


RIGHT SIDE VIEW

PARTS LIST

No.	Part No.	DESCRIPTION
1	59175	Tone arm housing
2	36882	Hairpin Cotter Hubbard No. 111 x .026"
3	64343	Tone arm spring
4	561337	Hinge pin
5	15123	Tone arm bracket and support tube
6	62096	Pickup damping shim
7	561404	Pickup spacer
8	71214	Crystal Cartridge
9	37176	No. 4-36 x 13/32 RHMS
10	15120	Spindle assembly
11	59165	Tone arm support
12	59176	Shelf cover
13	15127	Record support and crank assembly (R.H.)
14	15128	Record support and crank assembly (L.H.)
15	13435	Turntable
16	17115	Plunger and shelf assembly
17	57158	Record support shelf
18	2012-161	No. 6-32 x 7/16" BHMS
19	13583	Idler pulley (Used with Alliance motor)
	13584	Idler pulley (Used with Gen. Indust. motor)
	13635	Idler Pulley (Used with Russell motor)
20		No. 6-32 x 5/8" BHMS
21		Flat washer 1/2" O.D.
22		Flat washer (Idler pulley)
23		Spacer
24		Hairpin cotter
25	44038	Phono motor
26	04050	Shelf post
27	561403	Turntable "C" Stop washer
28	561368	Turntable drive shaft
29	36914	No. 10-32 x 2¼" Carriage bolt
30		Flat washer
31		Cover plate
32	2012-157	No. 6-32 x 5/16" BHMS
33	64301	Record support post hold down spring
34	561317	Interceptor shaft
35	36882	Hairpin cotter
36	55179	Pin
37	56975	Record plunger rocker arm
37A	64329	Plunger rocker spring
38	59164	Record support post
39	64302	Interceptor shaft spring
40	36888	No. 10-32 x 1" bolt
41	13510	Control knob assembly
42	36844	¼"-28 hex half nut
43	2019-007	¼" internal lockwasher
44	92189	Felt washer
45	2000-209	No. 8-32 x ⅜" RHMS
46	2019-045	External lockwasher
47	2000-327	No. 10-32 x 1½" RHMS
48		Tie lug for shelf link spring
49		Lockwasher
50	36949	⅜" x 24 standard hex nut
51	2012-209	No. 8-32 x ⅜" BHMS
52	07343	Pickup socket assembly
53	50204	Cork washer ¾" O.D.
54	561327	Trip finger spacer
55	561340	Wave washer
56	64327	Reject rod
57	15117	Trip finger assembly
58	60297	Cork washer
59	54108	Tone arm crank

No.	Part No.	DESCRIPTION
60	13412	Automatic stop switch and bracket assy.
	90145	Switch
	561402	Auto stop switch cover
61	36865	No. 10-24 x ½" HHMS
62	2012-151	No. 6-32 x ⅛" BHMS
63		Pin
64		Automatic stop and reject lever
65		Hairpin cotter
66	561349	Spacer
67	561335	Record ejector lever
68	561320	Tone arm lift rod
69	54100	Spacer
70	57160	Spindle Bracket
71	07321	Spindle gear assembly
72	561347	Pin
73	561351	Main cam tube
74	92189	Felt washer
75		Tone arm lift rod spring
76		Flat washer
77	37179	Flat washer ⅞" O.D. x 1/16" thick
78		External lockwasher
79	2015-007	No. 10-32 standard hex nut
80	2012-157	No. 6-32 x 5/16" BHMS
81	60438	Paper washer (Kit of 12, part 41117)
82	07329	Starting lever assembly
	561338	Spacer
	62086	Starting lever bumper
	62094	Starting lever sleeve
83	60438	Paper washer
84		Thrust washer, part of 85
85	56959	Thrust bearing
86		Thrust washer, part of 85
87	50204	Cork washer, ¾" O.D.
88		Flat washer ¾" O.D. x 3/32"
89	07332	Main cam assembly
90		Spacer
91	36847	Pin
92	07330	Shelf crank assembly, includes 94
93	64330	Shelf link spring
94		Shelf lever, part of 92
95		Flat washer
96	64325	Tone arm return lever spring
97	2015-007	No. 10-32 standard hex nut
98	561332	Spacer, shelf lever
99		Automatic stop lever
100	561354	Tone arm return lever
101	561350	Spacer, tie plate mounting
102		Tone arm lift rocker assembly, part of 112
103	2015-007	No. 10-32 standard hex nut
104	2000-313	No. 10-32 x ½" RHMS
105	64298	Spring
106		External lockwasher
107	2015-007	No. 10-32 standard hex nut
108	36843	¼-28 x 2⅜" HHM bolt
109		Flat washer
110		External lockwasher
111	2015-007	No. 10-32 standard hex nut
112	13414	Tie plate assembly
113		External lockwasher
114	2000-209	No. 8-32 x ⅜" RHMS
115		Hairpin cotter
116		Record lift lever, part of 112
117	64322	Record lift lever spring
	561331	Indexing spring



LEFT SIDE VIEW

LUBRICATION

Use light machine oil (SAE 10) on the following parts:

1. Turntable drive shaft felts (44 and 74)
2. Tone arm lift lever rivet (part of 112)
3. Record lift lever roller (116)
4. Record lift lever rivet (part of 112)
5. Tone arm return lever at spacer (90)
6. Phono motor, one drop on felt washers
7. Idler pulley
8. Crank link lever (92 and 94)
9. Interceptor shaft (34) at bearing in baseplate

Use light grease of vaseline type at the following points:

1. Light film at spindle and tube bearing surface (10 and 28)
2. Main cam tube (73)
3. Main cam (89) at gear teeth and cam surfaces
4. Tone arm return lever at guide spacer (101)
5. At record lift lever and spindle ball (10 and 116)

Do not lubricate the following parts:

1. Friction trip assembly
2. Tone arm support tube (5)
3. Starting lever assembly (82)
4. Tone arm hinge pin (4)

Be very careful not to allow oil or grease to get on the idler pulley or the turntable rim.

ADJUSTMENTS

FRICTION TRIP ASSEMBLY

The trip finger spacer (54) is set on the tone arm support tube with a clearance of eight thousandths between the base plate and the cork washer (53). This clearance should not be changed. To adjust the friction trip loosen the set screw in the tone arm crank (59) and adjust by raising or lowering this crank. The correct spacing for the friction cork washer, friction trip assembly is approx. .013".

STARTING TRIP ASSEMBLY

The starting lever (82) is changed from trip position to play position by striking the washer (77) during the change cycle. If this washer does not move the starting lever far enough the changer will trip again as soon as the change cycle is completed. To correct this, loosen the lock nut (79) and move the washer in toward the main cam. Be sure to tighten the nut securely to maintain the adjustment.

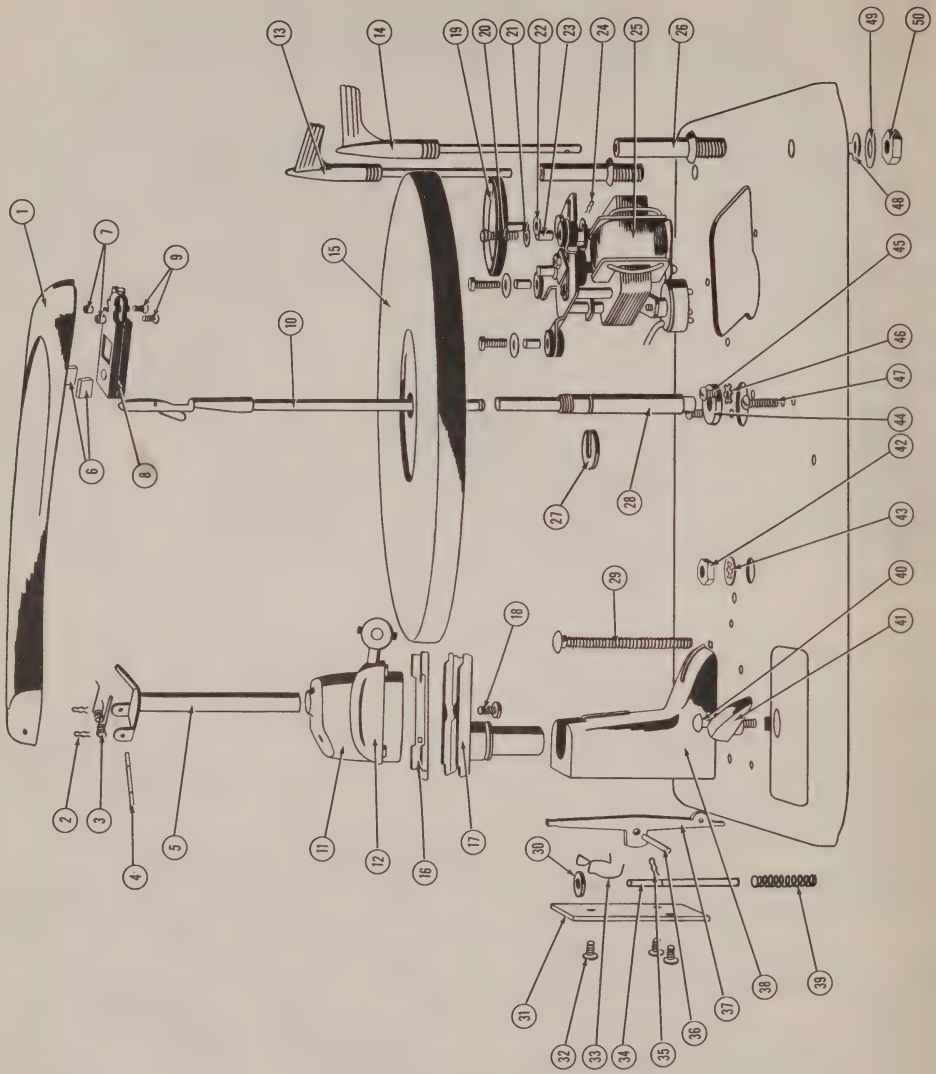
SET-DOWN ADJUSTMENT

The needle should land on the record half-way between the edge of the record and the first playing groove. To adjust for 10-inch records, loosen the set screw in the tone arm crank (59) and adjust the crank. Be careful not to disturb the friction trip adjustment.

After the 10-inch setting has been made, the 12-inch setting should automatically be correct. If not, it may be necessary to bend the tone arm return lever (100) slightly at the point where it touches the interceptor shaft (34). Caution: Do not bend the interceptor shaft.

TONE ARM HEIGHT

The tone arm height during the change cycle is controlled by adjustment screw 104. The adjustment is correct when there is 3/16" clearance between the top of the tone arm and the bottom of the bottom record of the unplayed stack when the tone arm is at its highest position during the change cycle.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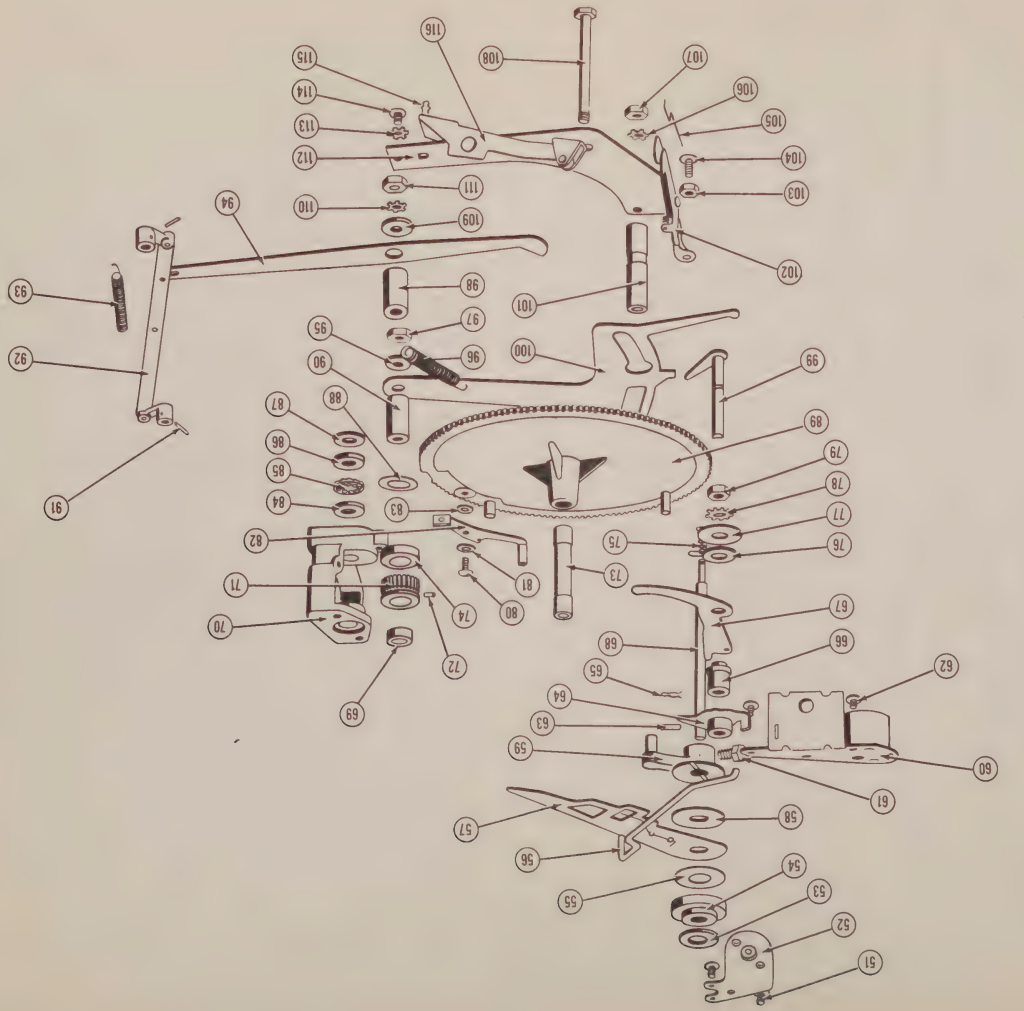
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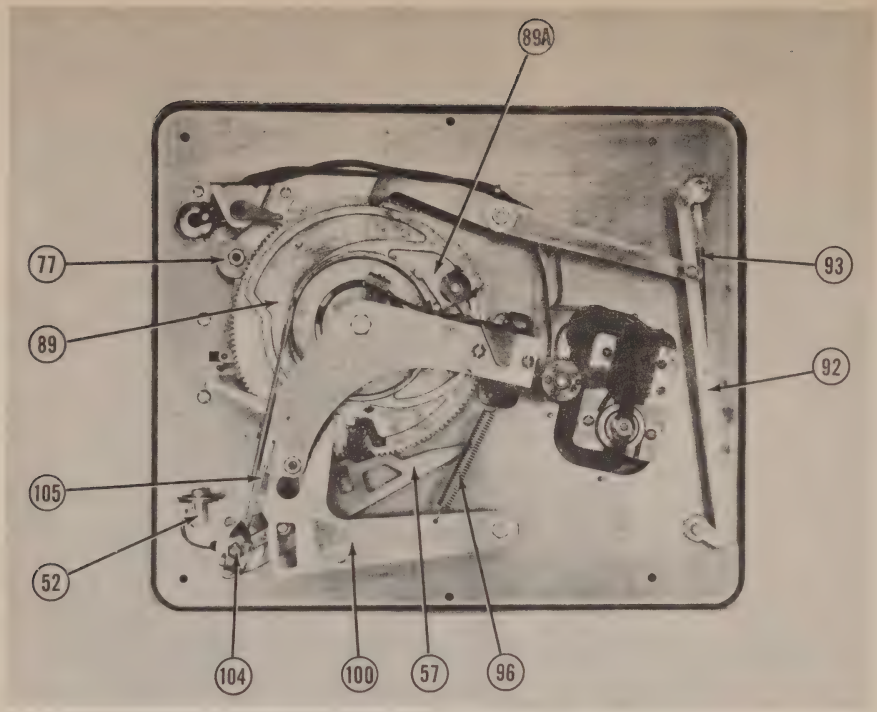


BOTTOM VIEW

SERVICE PROCEDURES

REMOVING TURNTABLE

The spindle gear may be wedged by a wooden block, or by a wrapped screwdriver. Remove the turntable by unscrewing it from the turntable drive shaft (counter-clockwise rotation). Do not use gas pliers to hold the drive shaft.

When replacing the turntable, be sure the "C" washer (27) remains fully inserted in the shaft, and that the idler pulley does not bind.

REPLACING THRUST BEARING

When replacing the thrust bearing (84, 85, and 86), be sure the thrust bearing washer having the smaller hole is inserted first so the shoulder on the turntable drive shaft will rest on this washer.

REPLACING INDEXING SPRING

Move the control knob to Automatic position and pull off the knob. Remove the two screws holding the assembly to the baseplate. Remove the hairpin cotter from the shaft and move the shaft so the pawl will not interfere with the spring. After replacing the spring, push it back against the bracket, away from the pawl, and push the shaft back into place. Replace the cotter, and reassemble the bracket on the baseplate. Be sure the reject rod (56) enters the hole in the pawl.

TROUBLES

RECORD BINDING

Oversize records may bind between the record plunger and the spindle during the change cycle. To remedy this, place a .042" shim (Farnsworth part number 37269) beneath the edge of the record support post (38) nearest the turntable. Late changers have an Allen set screw in the front of the record support post which may be turned down against the base plate, thus raising the front of the post. Be sure to loosen mounting screws under the post before adjusting the set screw.

RECORD LATCH CHATTER

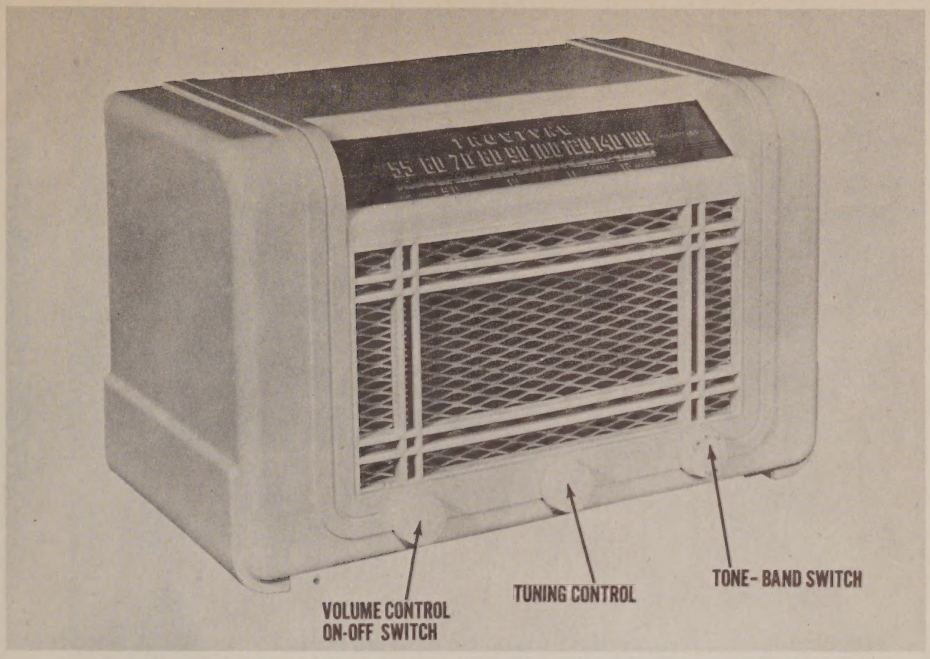
Record latch chatter may be corrected by applying a drop of oil between the spindle (10) and the turntable drive shaft (28).

BINDING OF MECHANICAL PARTS

Binding may be caused by washers being assembled upside down. Levers which operate on shoulder studs should be assembled so that the burred side of the washer is away from the lever; otherwise, the washer may bind on the lever. All moving parts should be checked for binding before springs are assembled.

CHANGER TURNS OFF AUTOMATICALLY BEFORE ALL RECORDS ARE PLAYED

Some changers may be found which turn off automatically even though records remain on the support post. This may be due to binding in the record lift lever, but usually it will be caused by failure of the lift lever to throw the automatic stop pawl (89A) completely in. The end of the automatic stop lever (99) may be filed slightly so the stop pawl will pass without touching.



TRUETONE MODEL D2613

TRADE NAME	Truetone, Model D2613
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC-DC 2 Band Superheterodyne - Self Contained Loop Antenna
TUBES (SIX)	Types, 12SK7 RF Amp., 12SA7 1st Det.-Osc., 12SF7 IF-2nd Det.-AVC, 12SK7 1st AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	117 Volts AC-DC — RATING .240 Amps. @ 117V AC
TUNING RANGE—BROADCAST	540-1650 KC — SHORT WAVE 9.0-12.0MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn variable fully closed and set pointer at 1st reference mark at left end of dial back plate. Use isolation transformer if available. If not, connect capacitor in series with low side of signal generator and B-. Set volume control at maximum volume and keep input from signal generator no higher than is necessary to obtain output reading. Care should be taken that the SW oscillator is aligned on the correct peak. To check, tune approximately 910KC below incoming signal. If image is not heard at this point turn to 12MC reference mark and open A8 to next peak. Then readjust A9 and recheck for image. Use insulated alignment screwdriver for adjustment.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
200 MMF	High side to pin #8 (Control grid) of 12SA7. Low side to B-.	455KC	BC	Any non-interfering point.	Across voice coil	A1,A2 A3,A4.	Adjust for maximum output
200 MMF	High side to ext. ant. clip. Low side to chassis.	1500KC	"	1500KC reference mark (1st line at right)	"	A5	" " " "
200 MMF	"	"	"	Tune for maximum output.	"	A6,A7	" " " "
400Ω	"	12.0MC	SW	12MC reference mark (2nd mark from right)	"	A8	" " " "
400Ω	"	"	"	Tune for maximum output.	"	A9	Rock variable and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12SK7	12SK7	8N	
2	1st Det.-Osc.	12SA7	12SA7	8R	
3	IF-2nd Det.-AVC	12SF7	12SF7	7AZ	
4	1st AF	12SK7	12SK7	8N	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	500256	DY-4020-150	EL-24	AF84D4A+	UP4CJ59+	FP306+	■ Filter
B	20	150							▲ "
8	.05	400	502157	S-4-05	TC-15	484-05	DT4S5	TP426	Rect. Bypass
9	.02	400	502152	S-4-02	TC-12	484-02	DT4S2	TP423	Feedback
10	.01	400	502151	S-4-01	TC-11	484-01	DT4S1	TP421	Output Plate Bypass
11	.004	400	502156	S-6-006	TC-24	484-004	DT6D4	TP407	Audio Coupling
12	.05	200	502153	S-4-05	TC-15	484-05	DT4S5	TP426	Audio Plate Decoup.
13	.002	400	502453	S-6-002	TC-22	484-002	DT6D2	TP405	Audio Coupling
14	.0008	400	502470	M0.3-38	MS-38	1479-0008	1W5T8	MC251	IF Bypass Vol. Cont.
15	.25	200	502262	S-4-25	TC-2	484-.25	DT4P25	TP430	Conv. Screen Bypass
16	.2	400	502158	S-4-2	TC-2	484-.2	DT4P2	TP429	Line Isolation
17	.1	200	502155	S-4-1	TC-1	484-.1	DT4P1	TP428	AVC Filter
18	.01	400	502151	S-4-01	TC-11	484-01	DT4S1	TP421	Ant. Coupling
19	110	500	502160	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	Audio Plate Bypass
20	110	500	502160	M0.5-31	1FM-31	1468-0001	5W5T1	MC235	IF Bypass Diode
21	50	500	502159	M0.5-45	1FM-45	1468-00005	5W5Q5	MC225	Osc. Grid Capacitor
22	315	500	502162						Fixed Padder SW
54	10								Fixed Trimmer *

+ Do not use bypass section.

* Not used in all models.

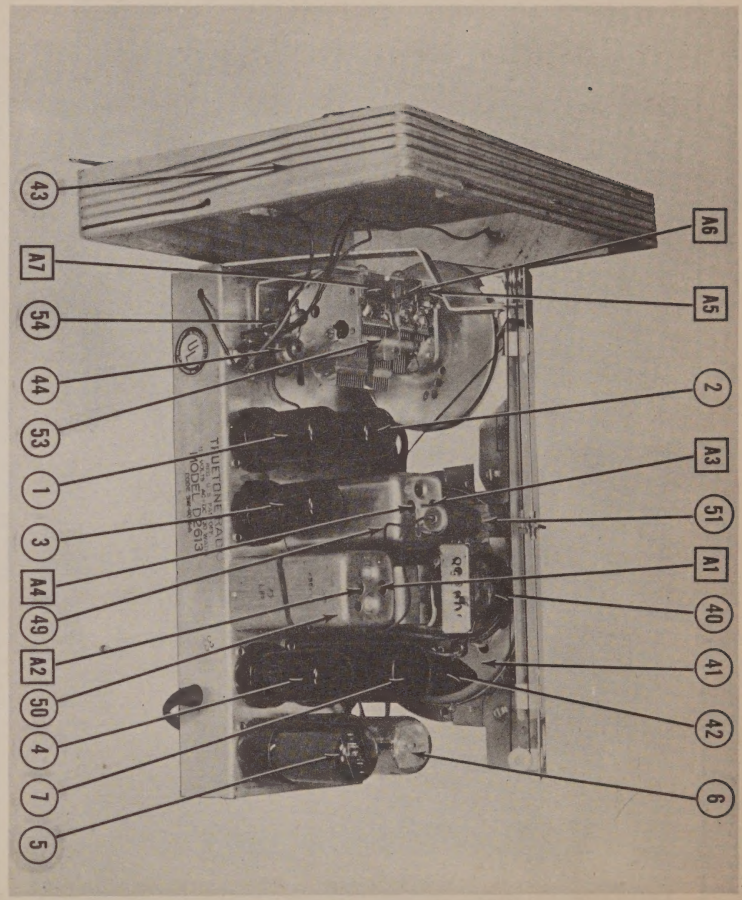
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
23A	500KΩ	1	502145	MK401	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	Not Req.	E	KSS-3	Attach to 23A per instructions
C	Switch		" "	M26	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
24	390Ω	½	502140	BW-½-390	Or.-White-Br. RF Cathode
25	22KΩ	½	502130	BTS-22K	Red-Red-Or. Oscillator Grid
26	220KΩ	½	502133	BTS-220K	Red-Red-Yl. Line Isolation
27	4700Ω	½	502991	BTS-4700	Yl.-Vi.-Red Mixer Screen Dropping
28	3.3 Meg.	½	502269	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
29	47Ω	½	502264	BW-½-47	Yl.-Vi.-Blk. IF Cathode
30	47KΩ	½	502131	BTS-47K	Yl.-Vi.-Or. Diode Filter
31	10 Meg.	½	502136	BTS-10 Meg.	Br.-Blk.-Blue 1st AF Grid
32	2200Ω	½	502128	BTS-2200	Red-Red-Red " " Cathode
33	2.2 Meg.	½	502135	BTS-2.2 Meg.	Red-Red-Grn. " " Screen Dropping
34	220KΩ	½	502133	BTS-220K	Red-Red-Yl. " " Plate Load
35	220KΩ	½	502133	BTS-220K	Red-Red-Yl. " " " Decoupling
36	470KΩ	½	502134	BTS-470K	Yl.-Vi.-Yl. Output Grid
37	130Ω	½	502138	BW-½-150	Br.-Or.-Br. " Cathode
38	1500Ω	1	502469	BTA-1500	Br.-Grn.-Red Filter
39	33Ω	½	502574	BW-½-33	Or.-Or.-Blk. Rectifier Ballast.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA			INSTALLATION NOTES
	PRI.	SEC. 1	SEC. 2	SEC. 3	TRUETONE PART No.	STANCOR PART No.	THORDARSON PART No.	
40A	2700Ω	3.9Ω	240Ω	.8Ω	502213	A-3876 ‡		‡ Bend mounting tabs down and mount on original bracket.
40B 40C					504244 502904	ALTERNATE TRANSFORMERS		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	TRUETONE PART No.	JENSEN PART No.		
41	PM	14Ω	R-502998 A-502998 W-502998	ST-107† P5-V	†	Fabricate new mounting bracket.
	CONE DIA.	VC DIA.				
42	5"	½"	502214 502903 504245			Use on R-502998 " " A-502998 " " W-502998

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		INSTALLATION NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
43	Loop Ant.	0Ω	.1Ω	502503		
44	Ant. Coup. Coil	.7Ω	3Ω	502121		
45	SW Ant. Coil	.5Ω	0Ω	502740		
46	BC RF Coil	7Ω	7.5Ω	502142		
47	BC Osc. Coil	1.5Ω	11Ω	502198		
48	SW Osc. Coil	.1Ω	.1Ω	502197		
49	Input IF	20Ω	20Ω	502102	16-6658	
50	Output IF	19Ω	19Ω	502103	16-6660	

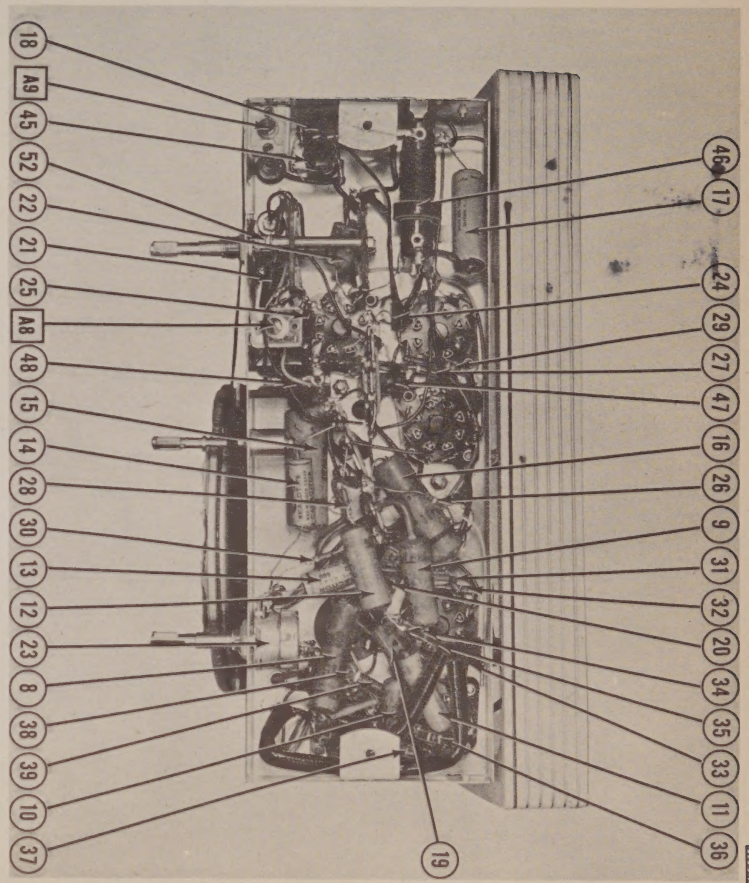
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TRUETONE PART No.		
51	Bayonet	6-8	0.15	Brown	502473		Type 47

MISCELLANEOUS

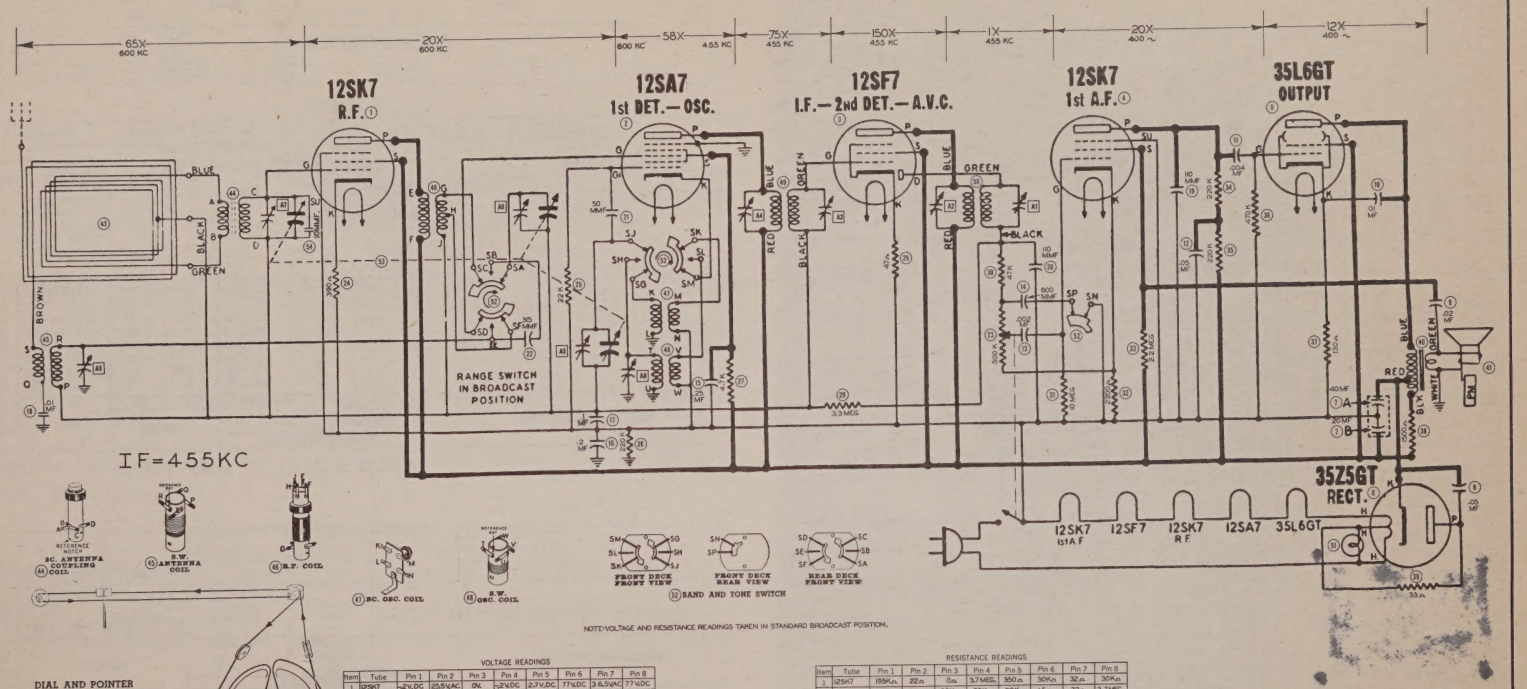
ITEM No.	PART NAME	TRUETONE PART No.	NOTES
52	Switch	502199	Band and Tone
53	3 Gang Var. Cap.	502123	Osc. RF & Ant. Trimmers Incl.
A8	Trimmer Cap.	502172	SW Osc. Adj. 25-100 MMFD.
A9	" "	502172	SW Ant. Adj. 25-100 MMFD.
	Dial Scale	502545	Glass
	Knob	502553	Volume or Tuning
	"	502554	Tone & Band Switch

CHASSIS—BOTTOM VIEW

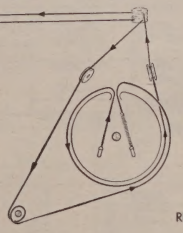


TRUETONE MODEL D2613

TRUETONE MODEL D2613



(32) BAND AND TONE SWITCH



DIAL AND POINTER DRIVE CORD ARRANGEMENT

To string dial cord, set gang condenser to fully meshed position and use following parts:

114955 Clip on end of cord
117057 Cord (57 inches)
119087 Ring for dial cord
161384 Tension Spring

NOTE: VOLTAGE AND RESISTANCE READINGS TAKEN IN STANDARD BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	-2V.DC	25.5VAC	0V.	-2V.DC	2.7V.DC	77V.DC	3.6.5VAC	77VDC
2	12SA7	-2V.DC	41.5VAC	77V.DC	58VDC	-3.2V.DC	0V.	36.5VAC	-2V.DC
3	12SF7	-2V.DC	-2V.DC	55V.DC	77VDC	-1V.DC	77V.DC	12.5VAC	25.5VAC
4	12SK7	-2V.DC	0V.	0V.	-25V.DC	35V.DC	7.5VDC	12.5VAC	23VDC
5	35L6GT	-2V.DC	47.5VAC	112V.DC	77VDC	0V.	0V.	85VAC	42VDC
6	35Z5GT	0V.	117VAC	113VAC	117VDC	112VAC	0V.	85VAC	116VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SK7	195Kn	22n	0n	3.7MEG.	350n	30Kn	32n	30Kn
2	12SA7	195Kn	42n	30Kn	35Kn	20Kn	45n	32n	3.7MEG.
3	12SF7	195Kn	3.7MEG.	45n	30Kn	430Kn	30Kn	11n	22n
4	12SK7	195Kn	0n	0n	1MEG.	23Kn	2.2MEG.	11n	470n
5	35L6GT	195Kn	42n	30Kn	30Kn	430Kn	430Kn	70n	22n
6	35Z5GT	INF.	97n	94n	30Kn	122n	0n	70n	30Kn

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

473-37

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.